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MEMES AS AN ANTIDOTE TO AI HEGEMONY

Abstract
Artificial intelligence (AI) has recently gained great progress in many disciplines, from natural language processing to visual recognition. In all these vast possibilities for computation, however, it seems that AI struggles at reproducing one of the most common human forms of expression: "memes". Memes happen to be too complex as digital artifacts and too deep in being an expressive part of cultural, personal, or collective experiences for any AI to understand–despite its wide access to data. The failure emanates from the symbolic, cultural, and ironic layers impregnated within memes, which are composed of deep social contexts, nuanced allusions, and quick changes in culture. Even though AI processes massive amounts of information, it has never been taught to recognize or piece together the interplay of these intricate human dynamics. The problem arises from the very nature of ambiguity that humor, cultural reference, and irony possess. In other words, even with millions of examples of memes, AI's attempts at humor seem to be far from human-like in most cases. In fact, the aim of this paper is to demonstrate that memes serve as an effective counterbalance to the growing influence of AI, because they offer a valuable insight into the limitations of AI in comprehending the nuances of human behaviour and emotional contexts. A comparative analysis of human-generated and AI-generated memes has enabled the identification of cognitive and creative limitations that define the boundaries of AI's meme-making capabilities. Scientific relevance of this research is positioned at the intersection of AI and digital culture because as AI technologies come to mediate online interactions more and more, memes can offer a unique form of resistance against them, emphasizing the irreplaceability of human humor.

Keywords
Artificial intelligence; memes; digital culture; internet studies; cultural semiotics.
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1. INTRODUCTION AND CONTEXT

In an age increasingly mediated by AI, human creativity and cultural expression face new challenges and transformations. Although AI has achieved remarkable capabilities in fields such as healthcare, finance, and automated content generation, it falls notably short in areas requiring nuanced human sensitivity – particularly in humor, irony, and cultural context. These limitations are especially evident in meme creation, a dynamic cultural phenomenon that resists easy categorization or algorithmic replication. Schol-

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ars in AI and cultural studies as Esposito[1] and Moruzzi[2] have pointed out that these gaps underscore how digital technologies, despite their computational power, lack the intricate contextual awareness central to understanding human expression.

Memes operate as complex symbols and humorous artifacts within internet culture, integrating shared knowledge, values, and emotions into succinct, relatable forms[3]. Beyond mere text-image combinations, they serve as carriers of collective social commentary, often drawing from contemporary events, societal issues, and cultural touchpoints to create resonant humor. These layers of symbolism require a blend of emotional intelligence, cultural literacy, and an appreciation for humor's incongruity – a combination that AI, rooted in pattern recognition and data analysis, is notably ill-equipped to achieve[4]. AI's attempts to replicate this meme-making process reveal a critical shortcoming: while AI can recognize visual patterns or imitate syntax, it struggles with the cultural and symbolic depth that makes memes compelling[5]. According to Moruzzi[6], this gap stems from AI's lack of creative agency, as machines operate on programmed responses rather than genuine contextual understanding, which is essential in humor and cultural critique.

As AI systems become more deeply embedded in digital and creative spaces, understanding these limitations becomes paramount. The shortcomings of AI in capturing the essence of memes highlight a broader issue in AI creativity: the absence of interpretive flexibility, where humor, irony, and cultural resonance all require more than pattern replication–they require interpretative processes typically beyond machine capabilities[7]. Memes thus represent a unique area of resistance to AI, exposing the boundaries of algorithmic "creativity" and reaffirming the value of human agency and intuition in cultural contexts. As Esposito[8] asserts, AI lacks the embodied cultural knowledge and experiential depth necessary for producing work that resonates authentically with human audiences. This paper explores these tensions by analyzing AI's limitations in meme creation, using frameworks from cultural semiotics and humor theory to demonstrate where and why AI falls short. Through a comparative analysis, this study will illustrate how AI's attempts at humor and social commentary in meme creation underscore its current inability to engage meaningfully with dynamic, context-rich aspects of human creativity.

2. THE CULTURAL AND SYMBOLIC COMPLEXITY OF MEMES

Memes are far more than humorous images shared online; they are complex cultural artifacts that embody shared knowledge, societal critiques, and emotional resonance. Memes operate as dynamic symbols, actively shaping and reflecting societal values,

[1] E. Esposito, *Artificial Communication. How Algorithms Produce Social Intelligence*, Cambridge: The MIT Press, 2022.

[2] C. Moruzzi, "Creative Agents: Rethinking Agency and Creativity in Human and Artificial Systems", *Journal of Aesthetics and Phenomenology*, 9, 2 (2022): 245-268. Accessed September 2024. https://doi.org/10.1080/20539320.2022.2150470.

[3] S.J. Evnine, "The Anonymity of a Murmur: Internet Memes", *British Journal of Aesthetics*, 58, 3(2018): 303-319. Accessed September 2024. https://doi.org/10.1093/aesthj/ayy021.

[4] K. Wojtkiewicz, "How Do You Solve a Problem like DALL-E 2?", *The Journal of Aesthetics and Art Criticism*, 81, 4 (2024): 454-467. Accessed November 2024. https://doi.org/10.3390/arts6040018.

[5] L. Shifman, *Memes in Digital Culture*, Cambridge: The MIT Press, 2013.

[6] Moruzzi, "Creative Agents: Rethinking Agency and Creativity in Human and Artificial Systems", 245-268.

[7] M. Boden, *The Creative Mind: Myths and Mechanisms*, London: Routledge, 1990.

[8] Esposito, *Artificial Communication*.

norms, and current events[9]. This shift underscores the participatory nature of meme culture, where users engage in collaborative meaning-making, a process that eludes AI's algorithmic interpretations[10]. Unlike structured tasks such as image recognition, meme creation demands an understanding of irony, symbolism, and shared cultural knowledge–areas where AI systems encounter significant limitations. Cannizzaro[11] describes memes as "internet signs" that encapsulate specific social contexts and discourses, conveying meaning through the layering of cultural symbols, humor, and irony. This process makes meme creation inherently semiotic, requiring an interpretive ability to decode signs that AI, currently grounded in data patterns rather than contextual interpretation, struggles to emulate. Memes such as the "Distracted Boyfriend" or "Mocking SpongeBob" rely on intertextuality, where the humor or critique emerges from the connection to specific cultural references and shared knowledge[12]. These formats are designed to evoke humor and social critique simultaneously, often hinging on nuanced visual cues and implicit knowledge that only a culturally immersed audience can fully appreciate. AI's attempt to replicate such humor falls short, as it lacks the necessary experiential and contextual sensitivity to grasp these references, leading to humor or symbolism that often feels flat or misplaced[13].

Meme creation thus goes beyond the superficial recognition of patterns or image-text combinations; it requires a nuanced engagement with the social and cultural landscape, incorporating shared values, current events, and historical references. Cannizzaro[14] emphasizes that internet memes function as a mode of "collective symbolic creativity", a form of digital folklore where users co-construct and negotiate meaning. This highlights a key limitation in AI models: their inability to replicate the interpretive depth necessary for symbolically rich and contextually meaningful meme creation. AI's failure to understand these symbolic intricacies underscores its current role as a tool of replication rather than as an agent of creative, meaningful content generation.

The complexity of memes extends beyond their symbolic layers to their adaptability within participatory culture. Memes are not static; they evolve and are continuously reshaped as they circulate online, gaining new meanings with each iteration and recontextualization. This fluidity aligns with Milner's[15] concept of memes as "public conversations", whereby each new version invites commentary, modification, and reinterpretation, enabling users to engage in real-time cultural discourse. The adaptability and rapid evolution of memes pose unique challenges for AI, which, though effective at producing formulaic outputs, lacks the responsiveness to engage with the dynamic, ever-changing nature of meme culture. AI's approach to meme generation is constrained by its reliance on historical data and established patterns, limiting its capacity to adapt to the constantly shifting social and cultural contexts of internet communities[16].

Furthermore, as memes function within a "hyper-contextualized" framework, their

[9] Evnine, "The Anonymity of a Murmur: Internet Memes", 303-319.

[10] W. Phillips, *This Is Why We Can't Have Nice Things: Mapping the Relationship between Online Trolling and Mainstream Culture*, Cambridge: The MIT Press, 2015.

[11] S. Cannizzaro, "Internet Memes as Internet Signs: A Semiotic View of Digital Folklore", *Sign Systems Studies*, 44, 4 (2016): 562-586. Accessed September 2024. https://doi.org/10.12697/SSS.2016.44.4.05.

[12] Shifman, *Memes in Digital Culture*.

[13] Wojtkiewicz, "How Do You Solve a Problem like DALL-E 2?", 454-467.

[14] Cannizzaro, "Internet Memes as Internet Signs: A Semiotic View of Digital Folklore", 562-586.

[15] R. Milner, *The World Made Meme: Public Conversations and Participatory Media*, Cambridge: The MIT Press, 2016.

[16] Esposito, *Artificial Communication*.

meaning often hinges on current social and cultural events that change rapidly[17]. Unlike humans, who can incorporate these shifting contexts almost intuitively, AI systems remain anchored to a static interpretation of patterns without the capacity for contextual flexibility. This inability to respond dynamically highlights the larger issue with AI's data-driven framework, which lacks the adaptive sensitivity required for meme-making in participatory digital cultures[18]. By engaging in "symbolic resistance"[19], memes thus underscore the fundamental gap between human cultural expression and AI's algorithmic limits, suggesting that meaningful cultural production remains deeply tied to human intuition and experiential understanding.

3. AI AND CREATIVITY: CAPABILITIES AND LIMITATIONS

The rapid advancements of AI in fields like generative art, automated text production, and music composition have sparked significant debate over AI's creative capabilities. While AI excels in rule-based and pattern-driven tasks, meme creation highlights a distinct gap in AI's creative abilities, particularly due to its limitations in emotional intelligence, cultural sensitivity, and humor. As Floridi[20] notes, AI systems are optimized for tasks that can be broken down into data processing and rule-following, yet lack the interpretive and emotional depth required for complex cultural expressions such as humor and irony. AI operates through pattern recognition, synthesizing vast amounts of data to produce outputs that mimic structured forms of creativity. In the realm of visual art, for instance, AI-generated works can replicate stylistic patterns, often resembling particular aesthetics or styles, but they lack the symbolic depth and intentionality of human-created art[21]. Floridi[22] argues that this kind of simulation reflects AI's ability to reproduce surface-level elements without engaging in genuine meaning-making or moral and ethical considerations that are intrinsic to human creativity. In essence, while AI may produce art that is visually appealing, it falls short of the symbolic and emotional resonance that characterizes human-created works.

The challenges AI faces in meme creation are even more pronounced in the domain of humor. Humor relies heavily on incongruity, timing, and shared cultural knowledge, elements that are difficult to codify algorithmically[23]. AI's literal interpretation of incongruous elements often results in humor that feels forced or uninspired, as it lacks the subtlety and social awareness that make jokes effective. According to Floridi[24], AI's lack of emotional intelligence and contextual awareness is an ethical limitation as well, especially in areas like humor and satire, where the risk of misinterpretation can lead to offensive or culturally insensitive outcomes.

This limitation is particularly evident in AI-generated memes, where humor and relatability are deeply tied to nuanced cultural references and shared social experiences.

[17] Cannizzaro, "Internet Memes as Internet Signs: A Semiotic View of Digital Folklore", 562-586.

[18] Moruzzi, "Creative Agents: Rethinking Agency and Creativity in Human and Artificial Systems", 245-268.

[19] Phillips, *This Is Why We Can't Have Nice Things: Mapping the Relationship between Online Trolling and Mainstream Culture*.

[20] L. Floridi, *Intelligenza artificiale: L'uso delle nuove macchine*, Milano: Bompiani, 2021.

[21] Wojtkiewicz, "How Do You Solve a Problem like DALL-E 2?", 454-467.

[22] L. Floridi, *Etica dell'intelligenza artificiale*, Milano: Raffaello Cortina Editore, 2022.

[23] S. Attardo, *Linguistic Theories of Humor*, Berlin: De Gruyter, 1994.

[24] Floridi, *Intelligenza artificiale*.

AI meme generators, trained on extensive datasets, can produce memes that visually mirror human creations but often miss the layered humor, symbolism, and contextual cues that give memes their impact[25]. These shortcomings reflect the computational gap[26] in AI inability to interpret meaning beyond the algorithmic frameworks it is given, making it difficult for AI to engage with the fluid, context-rich environment of meme culture.

AI's approach to creativity, then, reveals fundamental limitations when it comes to cultural production. By focusing solely on pattern replication and data processing, AI misses the interpretive, ethical, and emotional dimensions that are central to human creativity. The inability to grasp humor, irony, and cultural references in meme creation underscores a broader issue with AI's application in creative fields: while it can replicate form, it cannot replicate meaning. This points to a critical divide in AI's potential, as the technology, for now, remains a tool rather than an autonomous agent capable of genuine creative expression.

4. METHOD

The following method outlines the study research design, data collection, and analytical framework used to investigate how AI-generated memes differ from those created by humans in terms of humor, cultural relevance, and emotional resonance. The study is grounded in theoretical frameworks drawn from cultural semiotics and humor theory, providing the tools necessary to analyze both the symbolic and humorous aspects of memes.

4.1. *Study research design and framework*

This study follows a comparative research design to identify and examine cognitive and symbolic differences between human-generated and AI-generated memes. By juxtaposing these two meme sets, the study aims to uncover the specific cultural and humoristic elements that AI systems fail to replicate effectively. To achieve this, the analysis draws on Roland Barthes' semiotic framework[27], which treats memes as layered symbolic texts, and Attardo's[28] incongruity theory of humor, which focuses on the unexpected elements essential to humor. These frameworks provide a dual lens for exploring both the symbolic depth and humor mechanisms within memes, particularly assessing how cultural context and incongruity contribute to the effectiveness of human-generated memes and the limitations observed in AI-generated content. Given the symbolic and participatory nature of meme culture, this framework also incorporates Cannizzaro's view of internet memes as "internet signs"[29], emphasizing the complexity of shared cultural signs and contexts embedded within meme formats. This framework allows for an exploration of

[25] Cannizzaro, "Internet Memes as Internet Signs: A Semiotic View of Digital Folklore", 562-586.

[26] F. Bianchi, D. Hovy, "On the gap between adoption and understanding in NLP", *Finding of the Association for Computational Linguistics*, 2021: 3895-3901. Accessed November 2024. http://dx.doi.org/10.18653/v1/2021.findings-acl.340.

[27] R. Barthes, *Elements of Semiology* [1964], New York: Farrar, Straus and Giroux, 1977.

[28] Attardo, *Linguistic Theories of Humor*.

[29] Cannizzaro, "Internet Memes as Internet Signs: A Semiotic View of Digital Folklore", 562-586.

how memes act as dynamic symbols within digital folk culture, a quality that AI-generated memes often lack due to the algorithms' reliance on static pattern recognition and limited interpretive capacity. Prompt specificity was also an essential variable in this design, as slight adjustments to prompts can dramatically alter AI responses, highlighting the role of human input in shaping AI-generated content.

4.2. *Data collection: AI-generated and human-generated memes*

The data set comprises memes generated from the popular platform "Imgflip," which offers both manual meme creation and AI-assisted meme generation. The same templates were used for both human-generated and AI-generated memes to establish direct comparability. This approach ensures that the analysis can isolate differences based on meme creation processes rather than content variability. The prompts were short and concise to test IA's interpretative flexibility and its ability to navigate between humour and nuanced cultural references.Following the reviewer's comments on prompt crafting, multiple variations of prompts were applied to gauge how effectively AI could engage with different cultural nuances and humor types, recognizing the importance of prompt specificity in shaping AI-generated humor and meaning.

4.3. *Analytical tools and procedures*

A structured, mixed-method approach was employed for the analysis of the memes, combining qualitative content investigation, semiotic approach, and humour evaluation.

• Content investigation: Codes were assigned to both meme sets based on visual template usage, types of cultural references, and humor mechanisms, including irony, satire, and absurdity. This step identified the recurring visual and textual patterns in each meme, allowing for systematic comparison between human and AI-generated content.

• Semiotic approach: Barthes' semiotic approach was employed to dissect the symbolic and mythological layers within memes. Special attention was given to how AI memes handled symbolic depth compared to human-generated memes. Also, the analysis focused on whether and how AI memes conveyed shared cultural knowledge, assessing the presence or absence of intertextual references and symbolic adaptability in response to cultural cues.

• Humor evaluation: Attardo's incongruity theory of humor guided the humor evaluation, with a focus on how humor arises from unexpected but contextually resonant elements. AI-generated memes were assessed for their tendency toward literalism and failure to engage with irony and incongruity in ways that elicit humor. Following the reviewer's recommendations, the study carefully examined how differences in prompt specificity impacted AI's humor effectiveness, highlighting instances where AI's humor fell flat due to its lack of contextual awareness.

• Comparative analysis: The final step involved a comparative analysis that examined humor quality, cultural relevance, and symbolic resonance across human-generated and AI-generated memes. Specific attention was given to the ways in which prompt specificity affected AI meme coherence, examining recurring patterns and common failures in AI's attempts at humor and cultural commentary. By focusing on AI's inability to generate memes with layered symbolic meaning and situational humor, the comparative

analysis reinforces the hypothesis that meme creation requires a degree of intuitive cultural understanding that AI cannot achieve.

4.4. *Ethical considerations*

All memes were sourced from publicly accessible online platforms, ensuring that the study adheres to ethical standards for digital content analysis. The research did not involve any interaction with human participants, and all data was anonymized, respecting creators' privacy. The analysis was conducted in aggregate to prevent identifying or attributing content to specific individuals, minimizing any ethical risks associated with using user-generated online content.

4.5. *Limitations of the method*

Several limitations characterize this study's method. First, relying on publicly available meme generators may not fully capture the capabilities of more advanced AI technologies under development, which might offer improved humor and contextual processing. Second, the analysis of humor and cultural relevance is inherently interpretive and subjective, as humor perceptions vary widely among individuals and cultural groups. Finally, the study's reliance on prompt crafting as a key variable highlights the inherent dependency of AI-generated content on human input, which could skew results based on prompt specificity. Future studies might address these limitations by employing a broader range of AI meme generators and including a more diverse set of cultural and linguistic contexts to provide a more comprehensive evaluation of AI's creative limitations in meme production.

5. HUMAN-GENERATED MEMES VS. AI-GENERATED MEMES

The selected platform was "Imgflip"[30], which offers two distinct avenues for memes creation. The first is the ability to construct personalized memes through the selection of a template and the manual input of a custom message into designated text boxes. The second is the utilization of an AI-powered feature that, upon the selection of a template and the input of a prompt, enables the generation of a meme by leveraging the capabilities of AI.

[30] Imgflip is an online platform that provides tools for creating and sharing memes, as well as hosting a vast library of user-generated content. Its meme generator allows users to customize popular templates or upload their own images, making it a key resource for meme culture. The site's accessibility and template database contribute to the proliferation of specific meme formats, solidifying their role as shared cultural artifacts that facilitate humor, commentary, and social bonding.

Figure 1[31] - *The meme on the left, created by the author, is a way to ironize a classic current situation, the other one on the right is created by AI after inputting "rich people"*

Figure 2[32] - *The first meme was created as a reference to the Oasis reunion, while in the second meme I just inserted "Oasis" to AI*

Figure 3[33] - *In the meme on the left I simulated a classic situation that I often encounter when I go to Mcdonald's; in the one on the right I simply wrote "Mcdonald's" to the AI*

[31] "Distracted Boyfriend" features a man turning away from his presumed romantic partner to admire another woman, who represents a tempting alternative. The meme is often used to highlight conflicting priorities, choices, or distractions in a humorous manner. Its communicative value lies in visualizing interpersonal or abstract dilemmas with relatable humor.

[32] "I Bet He's Thinking About" shows a woman and a man in bed, with the woman assuming the man is thinking about stereotypically masculine or romantic issues, while his actual thought is revealed to be something unexpected, trivial, or humorous. It underscores the gap between assumptions and reality, often with self-deprecating humor.

[33] "Two Buttons" displays a character sweating over two labeled buttons, struggling to make a choice. The meme emphasizes the challenge of decision-making, especially when both options carry negative, humorous, or contradictory implications. It effectively conveys the pressure of choice and cognitive dissonance.

Figure 4[34] - *In this case the distinction between the meme created by myself and the one generated by AI is subtle, despite the straightforward prompt "Memes"*

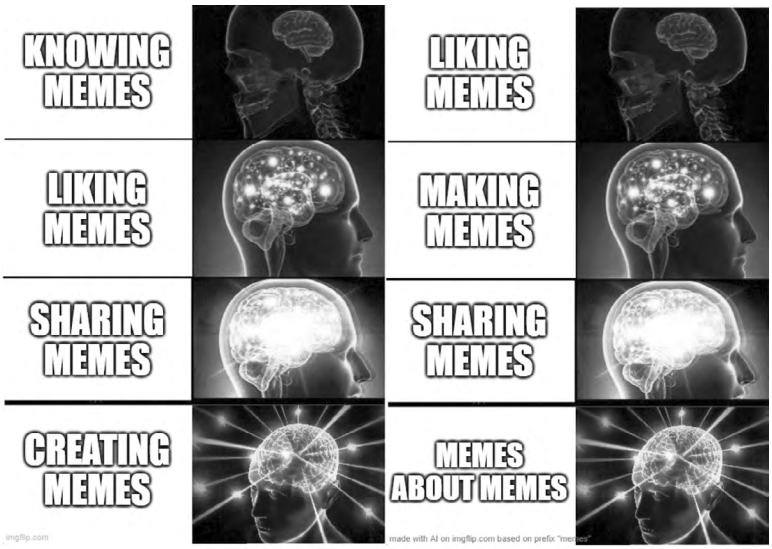

Figure 5[35] - *As in the previous one, in the latter example the result between my meme and the one proposed by the AI via the input "Mark Zuckerberg" is almost similar*

[34] "Expanding Brain" illustrates a progression of increasingly elaborate or enlightened states of thought, often depicted with glowing and expanding brains. It humorously contrasts shallow, mundane ideas with exaggeratedly "advanced" thinking, often to satirize over-complication or pseudo-intellectualism.

[35] "Trade Offer" features an individual framed in a symmetrical pose offering a deal, typically captioned with what they offer versus what they seek in return. It humorously represents exchanges, whether literal or abstract, and is used to critique or lampoon unbalanced transactions or ironic negotiations.

6. Result and discussion

The application of Attardo's incongruity theory of humor[36] reveals why AI-generated memes struggle to achieve the humor and cultural resonance of human-created content. According to Attardo, humor arises from the resolution of incongruity – a cognitive process where unexpected elements are reconciled within a given context. Human-generated memes in this study effectively exploit this mechanism, integrating unexpected juxtapositions and culturally resonant references to evoke humor.

For instance, in Figure 1, the "Distracted Boyfriend" meme leverages cultural familiarity with wealth disparity debates to construct an incongruity that resolves humorously: the boyfriend represents societal distraction by trivial concerns while neglecting critical issues like environmental crises. This juxtaposition, steeped in cultural critique, adheres to Attardo's notion that humor depends on a shared understanding of incongruities within a specific socio-cultural framework. In contrast, the AI-generated meme lacks this layered incongruity. Prompted by "rich people", the output remains superficial, failing to engage with the cultural or emotional dimensions necessary for humor. The AI's literal approach produces a static message devoid of the cognitive resolution required to evoke a humorous response, exemplifying the system's inability to recognize or construct contextually appropriate incongruities. This gap demonstrates AI's limitations in generating humor that resonates with shared socio-political awareness and collective irony in memes, as described by Shifman[37] and Evnine[38]. From a semiotic perspective, the effectiveness of this meme also lies in its layered use of signs. Barthes argues that images function on two levels: the denotative (literal) and the connotative (symbolic)[39]. The "Distracted Boyfriend" template operates as a denotative sign – a humorous depiction of a man distracted by another woman – but gains its full humorous and critical impact through connotative interpretation. Here, the boyfriend symbolizes societal priorities, and his distraction becomes a metaphor for superficial indulgences overshadowing urgent global issues. This semiotic layering allows audiences to decode and resonate with the humor, embedding the meme within a broader cultural critique. In contrast, the AI-generated meme, prompted by "rich people", lacks this semiotic depth. Its literal approach produces a static message confined to the denotative level, failing to engage with the symbolic or cultural dimensions necessary for humor. This deficiency exemplifies Barthes' notion of "mythologies," where cultural symbols acquire deeper meanings through shared social contexts – a process AI struggles to replicate due to its reliance on pattern recognition devoid of interpretive flexibility.

In Figure 2, where the prompt "Oasis" was used, the AI-generated meme again fails to capture the temporal specificity that human creators naturally integrate. The human-generated meme references the recent Oasis reunion, which resonates with audiences attuned to pop culture events, adding immediacy and relevance. Here, the semiotic process of intertextuality, as described by Cannizzaro, becomes crucial. Memes function as "internet signs", drawing meaning from their relationship with other cultural artifacts and contexts. The human-created meme exploits this intertextuality by embedding its humor within a contemporary cultural moment, while the AI's output remains

[36] Attardo, *Linguistic Theories of Humor*.
[37] Shifman, *Memes in Digital Culture*.
[38] Evnine, "The Anonymity of a Murmur: Internet Memes", 303-319.
[39] Barthes, *Elements of Semiology*.

detached, reflecting outdated training data that misses cultural shifts and nuances as they occur[40]. Similarly, Figure 3, using the "Two Buttons" template, highlights AI's limitations in producing humor with a personalized touch. The human-created meme draws on a familiar, humorous dilemma faced by many McDonald's customers, evoking relatability and shared experience. The AI-generated meme, responding to the keyword "McDonald's", produces a generic output without personal or emotional specificity – because AI lacks subjectivity and food taste and relies on collected data – underscoring the importance of contextually rich, relatable humor, as discussed by Gibbs and Colston[41] and Moruzzi[42]. Attardo's humor model emphasizes the importance of relevance and context in creating effective humor. AI's dependency on precise prompts highlights its deficiency in constructing humor autonomously. The human-created meme draws on a familiar, humorous dilemma faced by many McDonald's customers, evoking relatability and shared experience. The humor here relies on what Barthes terms the "readerly text", where audiences actively decode and reconstruct the signs presented in the meme to align with their own experiences. This participatory decoding process, which is central to meme culture, amplifies the incongruity and humor. By contrast, the AI-generated meme, responding to the keyword "McDonald's", produces a generic output that lacks the symbolic and experiential resonance necessary for effective humor. This limitation underscores AI's inability to navigate the semiotic complexity that defines meme-making, as it relies on static data rather than the dynamic interplay of signs and contexts that human creators intuitively manage.

In Figure 4 and Figure 5 AI produces outputs that mimic structural templates but fail to incorporate the nuanced incongruities necessary for humor. This limitation aligns with Attardo's view that humor requires a dynamic interplay of context, audience, and incongruity – a process AI cannot independently replicate. Moreover, the inadequacy of AI-generated humor underscores its reliance on data patterns that lack interpretive flexibility. While human meme creators intuitively embed culturally relevant incongruities into their work, AI relies on explicit instructions to achieve even surface-level coherence. This dependency not only diminishes the spontaneity of humor but also reflects the rigidity of AI's cognitive processing, which operates without the experiential grounding central to humor's effectiveness. Moreover, Barthes' semiotic framework helps explain why AI-generated memes often lack the interpretive flexibility that characterizes human creativity. Memes operate within a fluid, hyper-contextualized cultural space where signs continuously evolve and acquire new meanings through collective reinterpretation. While human meme creators navigate and adapt to these shifts intuitively, AI remains anchored to static data sets, unable to respond dynamically to cultural contexts. This rigidity not only diminishes the spontaneity of AI-generated humor but also reflects the broader limitations of algorithmic systems in engaging with participatory, context-rich cultural production.

[40] Milner, *The World Made Meme*.

[41] R.W. Gibbs, H.L. Colston, eds., *Irony in Language and Thought: A Cognitive Science Reader*, East Sussex: Psychology Press, 2007.

[42] Moruzzi, "Creative Agents: Rethinking Agency and Creativity in Human and Artificial Systems", 245-268.

6.1. *The role of contextual understanding and the relationship between AI-generated memes and AI-generated comics*

The result aligns with the observations of Floridi[43], who argues that AI's interpretative capability is strictly limited to predefined data patterns and explicit prompts. In fact, in an article titled *Professional AI whisperers have launched a marketplace for DALL-E prompts*[44], on prompt crafting, further highlights this dependency, emphasizing how AI output quality is contingent upon prompt specificity, suggesting that AI lacks the adaptive flexibility necessary for spontaneous humor or cultural commentary. Indeed, this participatory quality aligns with Cannizzaro's concept of memes as "internet signs", where cultural symbols gain meaning through collective interpretation. AI-generated memes also struggle to evoke emotional resonance and personalization, which are essential to effective meme humor. For instance, Figure 3's human-generated meme reflects personal experience, drawing humor from relatable situations that McDonald's customers frequently encounter. This personalized humor requires a familiarity with cultural references and daily experiences, which AI systems cannot replicate without specific input data. The AI version, based on a simple "McDonald's" prompt, lacks this emotional depth and falls flat, highlighting the limitations of AI in producing content that resonates emotionally with audiences. This finding supports Boden's[45] view that true creativity requires emotional intelligence and personal engagement, qualities that AI lacks.

Since memes share with comics the challenge of integrating text and images to convey meaning, humor, or critique, it is worth considering AI-generated comics as a related area of inquiry. Both media demand not only technical execution but also nuanced cultural and contextual awareness to resonate with audiences effectively. This commonality makes AI-generated comics a pertinent area of inquiry when evaluating AI's broader creative limitations. Like memes, comics rely on semiotic complexity, visual storytelling, and an understanding of cultural subtleties. The challenges AI faces in meme creation – such as cultural illiteracy, emotional detachment, and contextual rigidity – are similarly evident in its attempts at comic generation. Recent studies on AI in comic generation[46] demonstrate that while AI systems are capable of reproducing visual styles and constructing rudimentary narratives, they often fail to achieve the symbolic depth and interpretive engagement characteristic of human-created comics. Comics rely heavily on sequential art and visual-textual synchronization to tell a story or deliver a punchline, often embedding multiple layers of meaning that depend on shared cultural knowledge, irony, and emotional resonance. AI-generated comics, much like AI memes, struggle to navigate these interpretive layers, producing content that may be technically coherent but lacks the subtle interplay of signs and contexts that captivate human audiences. From a semiotic perspective, comics and memes operate as "systems of signs", as described by Roland Barthes[47]. Both media involve a dynamic interaction between the denotative and connotative levels of meaning. In comics, the sequential

[43] Floridi, *Intelligenza artificiale*.

[44] A. Robertson, "Professional AI whisperers have launched a marketplace for DALL-E prompts. AI art isn't just an experiment – it's a side hustle". The Verge, September 2, 2022. Accessed November 2024. https://www.theverge.com/2022/9/2/23326868/dalle-midjourney-ai-promptbase-prompt-market-sales-artist-interview.

[45] Boden, *The Creative Mind: Myths and Mechanisms*.

[46] P.P, Gunasekara, P.M. Perera, C.D. Adhihetty, D.D. Kollure, N. Kodagoda, A. Caldera, "Generate Comic Strips Using AI", *Proceedings of Conference on Transdisciplinary Research in Engineering*, 1, 1 (2024). Accessed November 2024. https://doi.org/10.31357/contre.v1i1.7387.

[47] Barthes, *Elements of Semiology*.

arrangement of panels creates a narrative flow that requires audiences to infer meaning from the juxtaposition of images and text. This inferential process is central to the humor or critique that comics often convey, relying on cultural literacy and an ability to decode subtle visual or textual cues. Similarly, memes depend on intertextuality and cultural references to evoke humor or critique, compressing meaning into a single frame or a concise text-image combination. AI systems, however, are limited in their ability to interpret or produce such semiotic depth. Their outputs often reflect a literal, surface-level understanding of the text or imagery, missing the nuanced interrelations that give comics and memes their impact. For instance, in comics, a visual punchline often relies on timing, context, and the reader's ability to connect disparate elements within the narrative. AI-generated comics struggle with this level of sophistication. Without an intuitive grasp of irony, pacing, or cultural nuances, AI-produced punchlines may appear mechanical or forced, failing to engage audiences on an emotional or intellectual level. This limitation mirrors the shortcomings of AI-generated memes, which lack the symbolic richness and cultural adaptability that characterize human-created memes. Humor and irony are central to both comics and memes, serving as tools for social commentary and cultural critique. Again, Attardo's[48] incongruity theory of humor, which posits that humor arises from the resolution of unexpected juxtapositions, applies equally to these media. In comics, humor often emerges from incongruities within the narrative or visual elements, requiring the audience to reconcile conflicting meanings. Memes, by comparison, compress this process into a single frame, relying on intertextuality and cultural references to deliver a punchline.

Exploring the parallels between AI-generated memes and comics expands the scope of this paper by situating memes within a larger framework of investigation. Both media highlight the irreplaceable role of human intuition and experiential knowledge in creative processes. Future research could investigate whether advances in AI contextual learning – such as incorporating real-time cultural data or improving multimodal interpretive capabilities – might enhance AI's ability to produce meaningful comics and memes. For instance, advancements in natural language processing (NLP) and visual recognition could enable AI systems to better integrate textual and visual elements within a culturally relevant framework.

6.2. *Comparison with autism-related humor interpretation*

The result findings indicate a potential correlation between the difficulties AI encounters in comprehending humor and the challenges faced by some individuals on the autism spectrum. These individuals often exhibit difficulties in interpreting language and humor in a nuanced manner, while simultaneously struggling with irony, sarcasm, and other context-dependent forms of expression. This analogy helps illuminate how humor interpretation relies heavily on contextual sensitivity, cultural literacy, and an ability to navigate shared social cues. Though not intended to reduce the diverse cognitive experiences of individuals on the autism spectrum to a single framework, this comparison emphasizes that both AI and individuals with certain neurodivergent traits encounter challenges in engaging with humor that depends on interpretive flexibility and nuanced cultural knowledge. Research on humor in autism has consistently highlighted a prefer-

[48] Attardo, *Linguistic Theories of Humor*.

ence for literal interpretations of language, often at the expense of grasping implied or multi-layered meanings. Attwood[49] describes how individuals on the autism spectrum may excel at logical reasoning but find it challenging to decode the social and contextual subtexts that underpin humor. Similarly, AI operates on rule-based logic and data patterns, which limits its ability to interpret the incongruity and subtlety central to effective humor[50]. Just as neurotypical humor often relies on tacit cultural assumptions and shared knowledge, so too does meme culture demand an understanding of intertextual references, social norms, and implied meanings – domains where both AI and some individuals on the autism spectrum may struggle. For instance, an AI meme generator tasked with producing humor often relies on surface-level data correlations rather than engaging with the dynamic social and cultural cues that inform humor in a given context. This parallels findings from studies like those by Happé[51], which demonstrate that individuals with autism may require explicit contextual information to fully understand jokes or ironic statements. In both cases, the lack of intuitive access to shared social knowledge limits the effectiveness of humor interpretation

Humor frequently depends on shared cultural knowledge, which acts as a scaffold for interpreting incongruities and resolving ambiguity. For individuals on the autism spectrum, as well as AI, the absence of this scaffolding can result in humor that is misinterpreted or perceived as nonsensical. Baron-Cohen and Bolton[52] suggest that individuals with autism may find it difficult to infer mental states or intentions, a skill known as "theory of mind", which plays a crucial role in understanding sarcasm, irony, and other context-dependent humor. In fact, AI seems to operate without an inherent "theory of mind", relying instead on explicit programming or training data to approximate understanding. This deficiency is evident in AI-generated memes, which often fail to evoke humor because they lack the ability to infer the cultural and emotional contexts necessary for effective joke construction. Humor involves more than the mechanical juxtaposition of elements; it requires an awareness of audience expectations, social norms, and the symbolic resonance of the content–all areas where AI remains deficient. Contextual sensitivity is another critical component of humor that both AI and individuals on the autism spectrum may find challenging. Overall, in neurodivergent individuals, different studies[53] highlight that humor interpretation improves with explicit contextual cues, suggesting that structured scaffolding can enhance understanding. Similarly, advances in AI's contextual learning could potentially bridge some of its gaps in humor interpretation, though the inherently adaptive and participatory nature of meme culture poses a unique challenge.

Nevertheless, given the limited scope of the sample comparison, it is imperative to exercise caution in interpreting this section, as they may not necessarily reflect a scientific correlation between AI and the interpretation of autism-related humour.

[49] T. Attwood, *The Complete Guide to Asperger's Syndrome*, London: Jessica Kingsley Publishers, 2008.

[50] Attardo, *Linguistic Theories of Humor*.

[51] F.G. Happé, "An Advanced Test of Theory of Mind: Understanding of Story Characters' Thoughts and Feelings by Able Autistic, Mentally Handicapped, and Normal Children and Adults", *Journal of Autism and Developmental Disorders*, 24, 2 (1994): 129-154. Accessed November 2024. https://doi.org/10.1007/BF02172093.

[52] S. Baron-Cohen, P. Bolton., *Autism. The Facts*, Oxford: Oxford University Press, 1993.

[53] M.L Bauman, T.L. Kemper, eds., *The Neurobiology of Autism* [1994], Baltimore: Johns Hopkins University Press, 2005.

7. CONCLUSIONS

The evidence from this study suggests that memes, with their layered humor, symbolism, and cultural specificity, can serve as an incisive critique of AI's creative limitations. While AI can replicate structural elements of meme formats, it falls short in conveying the depth, emotional resonance, and contextual awareness that characterize human-generated memes. Memes, therefore, today can act as a form of cultural resistance to AI's growing presence in creative spaces, underscoring the irreplaceable value of human intuition, cultural knowledge, and emotional intelligence in meme production and broader cultural critique. One of the main aspects with this line of reasoning is that AI's capacity to mimic meme formats merely scratches the surface of what memes represent in terms of humor, cultural insight, and shared social experiences. The inherently human qualities of irony, contextual adaptability, and layered meaning remain crucial aspects of meme-making that AI cannot achieve, positioning memes as a vivid testament to the limits of algorithmic culture. The findings reinforce the essential role of prompt crafting in determining AI-generated meme success. AI's humor and contextual relevance often fail without highly specific, carefully structured prompts, underscoring its dependency on explicit human guidance to achieve meaningful output. This dependency reveals a gap between AI's rigid, data-driven processing and the adaptive, contextually rich processes that human creativity requires. AI's lack of interpretive flexibility restricts its application in creative fields that demand nuanced, situational awareness – qualities intrinsic to humor and meme creation. Future research could broaden this exploration by examining similar AI applications in creative domains like AI-generated comics, which share memes' reliance on combining text and imagery to convey humor and narrative. This would provide additional insights into how AI handles multimodal expression and reveal if it faces comparable limitations in producing culturally resonant content. As memes continue to exemplify the intricacies of human cultural expression, they reveal that critical aspects of creativity – such as humor, emotional depth, and participatory engagement – are likely to remain beyond AI's current and foreseeable capabilities. This ongoing dialogue reaffirms the necessity of preserving human expression, interpretive freedom, and cultural sensitivity in an increasingly algorithm-driven digital landscape.