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POST*HUMANING* CREATIVELY

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Abstract: The recent development in technology, and the wide spread of AI tools (chatbots, large language models and tools such as ChatGPT or Midjourney) have raised several concerns with regards to the future of (especially creative) work, education (use of AI tools and plagiarism detection, use of robots in classrooms), healthcare (therapy chatbots), as well as childcare and eldercare (social robots).
Creativity applies to different fields, such as art, science, sports, engineering, and research. It is also commonly found in daily activities such as cooking, joking, and cleaning. Most activities can be done in a creative way. So far, it has been traditionally assumed that art can only be created by human agents, which is why, perhaps as a design challenge, new AI tools such as Midjourney, DALL–E, CANs (Creative Adversarial Networks) and GANs (Generated Adversarial Networks) have been used to produce content such as photos, music, poetry, texts used in advertising, journalism, science and even in research projects or art projects. Recently, the fear that AI might replace artists translators and even researchers, has become a pressing issue.
I argue that no putative criteria or any single putative criterion distinguishes AI from human creativity in a justified way. In this article I survey the most popular ones and find them controversial, lacking or both. In light of this, I believe that the impact of AI creativity on our lives and the policies suited for them ought to be reassessed open-mindedly.

Keywords: creativity, strong artificial intelligence, psychological novelty, spontaneity, agency.

Revista de Filosofie Aplicată, Volume 7, Issues 12-13 (Winter 2024): 27-45.
ISSN 2668-0009; ISSN-L 2668-0009

CREATIVITATEA ÎN CONTEXTUL POSTUMANISMULUI

Rezumat: Dezvoltarea recentă a tehnologiei, precum și răspândirea largă a instrumentelor de inteligență artificială (chatboți, instrumente precum ChatGPT sau Midjourney) au dus la articularea unor preocupări cu privire la viitorul ocupațiilor (în special în domeniului creativ), al educației (instrumente pentru generarea de text și instrumente pentru detectarea plagiatului, utilizarea roboților în sălile de clasă), al asistenței medicale (chatboți folositi în terapie), al îngrijirii copiilor și bătrânilor (roboți sociali).
Creativitatea este un element central în diferite domenii, cum ar fi artă, știință, sport, inginerie și cercetare, dar nu numai: ea este prezentă și în activitățile zilnice, cum ar fi gătitul, umorul sau curățenia. Aproape orice activitate poate fi realizată într-un mod creativ. Până acum, s-a presupus în mod tradițional că arta poate fi creată numai de agenți umani, motiv pentru care, poate ca o provocare de proiectare, instrumentele noi de tipul inteligenței artificiale, cum ar fi Midjourney sau DALL–E, au fost folosite pentru a produce conținut precum fotografii, muzică, poezie, texte utilizate în publicitate, jurnalism, știință și chiar în proiecte de cercetare sau proiecte artistice. Recent, teama că inteligența artificială ar putea înlocui artiștii, traducătorii și chiar cercetătorii, a devenit o problemă presantă.
Argumentez că acele criterii presupuse ca necesare pentru creativitate nu reușesc să ducă la o distincție între creativitatea umană și cea artificială într-un mod justificat. În acest articol le analizez pe cele mai des întâlnite și găsesc că acestea sunt controversate, insuficiente sau ambele. Cred că impactul creativ al inteligenței artificiale asupra vieților noastre și politicile publice potrivite pentru acesta ar trebui reevaluate fără prejudecăți.

Cuvinte-cheie: creativitate, inteligență artificială în sens tare, noutate psihologică, spontaneitate, agenți.

1. Introduction

As the need to generate AI policies and governance has been outlined in both the literature and the media, it seems important to acknowledge the apparent consensus with respect to developing technology in a socially responsible, ethical and sound way. What is expected from these regulatory measures is to have or develop AI tools that are in line with societal values, that respect individual rights and freedoms, including user data privacy and avoiding bias – which is usually inherited from training data and other humans. As advances in AI grow at a fast rate, phenomena like AI theft bring into question the legal status of AI-generated content or product and whether these should be under the same protection as human-generated content.

These debates could, on the one hand, settle the role that AI plays in the lives of humans, or, on the other hand could further fuel the fear that AI pervades our lives. Regardless of this potential divide, at the core of these debates lie challenges that outline the posthumanist context in which one needs to reconceptualize what it now means to be human and what the unique characteristics of being human are. In *Natural-Born Cyborgs,* Andy Clark argues that we are all *human-technology symbionts*, and it is this exact proclivity for extension of our cognitive system, that makes us unique. If he is right, then there is no update to our humanness; paradoxically, it is precisely our *openness to information-processing merger*[1] that makes us special. If we are to maintain this openness and accept that that AI will continue to impact and shape our lives, assumptions about uniquely human qualities may soon be questioned.

In this article, I explore the anthropocentric assumptions underlying the idea that creativity is quintessentially human – and bring forward reasons why maintaining a rigid position stemming from a taken-for-granted view of the world will not clear the tensions arising from the use of AI technologies, nor settle concerns about the impact that AI may have on job markets. I argue that we do not have

sufficient reasons to deny that AI can exhibit creativity, while pushing forward a posthuman approach, where creativity can be expressed as an entwinement, where both human and non-human entities can interweave by means of their interaction a (novel historical context which can allow for the) reconfiguration of subjectivity. An overhaul of the creative process in the posthuman context, given this coalescence of *prima facie* two different categories of agents (or actants, if we are not to ascribe agency to non-human entities), can spring up a fresh way of conceiving the alleged encroachment of AI systems on both human work and leisure.

2. Prerequisites for creativity—necessary or nice to have?

If creativity is to be explained, we should explore putative requirements for creativity. In this article, I explore the most common ones, and argue they are not met in an epistemically satisfying way as long as we insist humans possess them, but AI systems lack them. Metaphysically, failure to meet these requirements in AI is not obvious to me, nor is the fact that these are all necessary prerequisites for creativity. Epistemologically, opting for parity seems the best solution: if we're unjustified to think that all creative AI systems fail these requirements, we're also unjustified to think all creative humans meet them.

Ancient conceptions associate creativity with (divine) inspiration, madness, geniuses, muses and imagination. All this suggests lack of cognitive control in creativity, which I approach below under the headings of spontaneity and surprise. Ancient views occasion a choice. Either (α) one needs some sort of external force to push forth creativity. Here, we can think that an AI has no access to divine inspiration, no access to the torments of creativity and no muses. Or, contrariwise, (β) the huge amount of data/creative artwork produced by geniuses with divine inspiration, to which an AI has access in training, coupled with the input-request for creative output from multiple users, can be interpreted as a mixture of muses, divine

inspiration and torment. In what follows, I take creativity to have natural causes (in a broad sense). Partisans of the supernatural don't seem to provide an explanation of creativity, much like the ancients. Even if we were to take the ancient approach[2], it is not clear why an AI could not be whispered into creativity, if a human being can be whispered into creativity. Ancients, however, don't put forward a *theory* that explains why creative people are creative or what their creativity consists of[3].

Defining creativity is no easy task. However, some general requirements are usually specified for something to be deemed creative; it must be a) new; b) valuable; c) surprising[4]; d) spontaneous[5,6]; e) agential[7,8,9]; f) intentional[10].

The most influential views on AI creativity, agency and authorship are based on perceiving creativity in anthropocentric terms, placing humans and machines in adversarial terms - a view criticized by Bartow[11] and Craig[12]. By their lights, any creative agent *must* be human-like. But what does one mean by "human-like"? This bears on more than creativity, it bears on fundamental mechanisms as well, such as theory of mind (TOM, for short). We start, as babies, by extending the courtesy of ascribing agency to everything that moves, and we continue to extend that courtesy to non-human animals and to fictional characters, regardless of whether we hold the belief that those have minds and mental states or not, as pointed out by Fisher[13], who called these tendencies interpretative anthropomorphism and imaginative anthropomorphism. We also tend to ascribe mental states to large language models (AI)[14]. Why not attribute creativity as well? We can say that the dog chewed on a couch in a creative way, or that the husky sang a novel and surprising song while one was playing the guitar[15]. TOM seems to bear on creativity in another sense as well: some argue that in order to make a product that can be deemed novel, original and spontaneous, one is expected to think about what others might think about the product[16] – this might be relevant to H-creativity. Some theorists who take metarepresentation as a requirement for TOM[17] find that this ability allows cognizers to account for multiple representations of the same event or object (as in representational accounts of pretense play) – which, in turn, further

allows them to come up with novel, unexpected solutions or responses. The debates around TOM, metarepresentation and cognitive mechanisms that might underlie our mindreading abilities, are controversial. No TOM-based approach precludes, without further argument, attributing mental states to Chat GPT: perhaps it *thinks* that *we think* that *it is not creative*. Whether we do end up denying creativity to Chat GPT and the like seems to be grounded not in principled argument, but in social norms and the narratives we will acquire around AI systems. These narratives will impact our beliefs on whether AI is creative or not. If there is no more to creativity than perceived creativity and what matters is the *appearance* of creativity, then for a weak AI view this would not be an issue. In what follows, *I only consider the prospect of strong AI creativity – the weak one is guaranteed*.

In order to make sense of whether AI can or cannot be creative, we need to ask ourselves about the category of things that are considered for the attribution of creativity.

i) The agent is not the right kind of agent – the emphasis is placed on who is creative, so creativity is applied to *someone* (who);
ii) The way in which the creative process is performed is not the right kind of way– the emphasis is placed on how the process unfolds, so creativity is applied to *a process* (how);
iii) The product of the creative process is the wrong kind of product – the emphasis is placed on the result, so creativity is applied to *a product* (what);

The sections below follow this threefold division. In each case, I argue that genuine AI creativity has not been ruled out.

3. Attributing creativity to products: novelty, value, surprise

Margaret Boden[18] sees creativity as the ability to come up with

ideas or artifacts that are *new, surprising and valuable*. She argues that creativity is an aspect of human intelligence and distinguishes between two types of creativity: psychological creativity (P-creativity) which characterizes an idea that is valuable, surprising and new, and historical creativity (H-creativity), which means that the idea arose for the first time in history[19].

Following Boden, for a product to count as creative, it must be psychologically (or at least behaviourally) *new* in the sense that the products are new in relation to products produced in the past. Psychologically, this requires the producer to remember what it has produced in the past. Historically, this depends on the community's domain-specific expertise.

Psychological creativity is insufficient for historical creativity. For Boden, however, an idea can be historically creative only if it is psychologically creative and has never before occurred in the history of ideas. Based on the surprise dimension of creativity she further divides it into three types: the first is about making unfamiliar combinations of familiar ideas (which is something that an AI could do); the second is about exploration and the third is about conceptual spaces in people's minds. She argues that communities have a role in shaping our cognitive maps, and our styles of thinking make some thoughts simply unthinkable– creativity can change that in the sense that someone (an AI, perhaps) can think something which has not been humanly thought before. This appears to be the deepest kind of creativity.

I agree with Boden at least qualifiedly. Metaphysically, some AI systems may exhibit domain-specific expertise, as may some humans. Equally, some AI systems might lack domain-expertise, as may humans too. Expertise can be acquired either way. Epistemologically, we lack reason for attributing creativity to all human creations when we refrain from attributing creativity to products of all AI systems. Egalitarianism is not ruled out.

Judgements of *value* are controversial for products generated by humans and non-humans alike. Does the audience judge if the product is valuable? A product can be valuable to an AI and not to a human agent, and a product can be valuable to a human agent and not

valuable to an artificial intelligence. Either way, value does not seem to bear on whether the product is creative. Does it need to be valuable at the time of production? Is there any persuasive work that needs to be done (either by human agents or AI systems) in order to convince the audience that it is valuable? Intrinsically valuable, instrumentally valuable? Partisans of the value criterion for creativity should answer the open questions about it and explain why creative products ought to be valuable. Contrariwise, rejecting the value condition involves debating whether the novelty criterion is sufficient and introducing other conditions, beyond novelty, that a product needs to satisfy in order to be deemed creative. For the sake of argument, I tackle surprise as one such possible criterion.

Consider the exploration parameter that allows AlphaGo to go beyond its training, encouraging it to simulate novel moves relative to the ones in data training. The question is whether we can distinguish between products that are novel and *surprising* made by humans and AI, respectively. By "surprising" the authors mean unexpected, previously not thought possible. Even though this appears to be a feature of products to Boden, her arguments bear more on the processes that underlie production. She distinguishes combinatorial creativity (new P from old P's), exploratory and transformative creativity. Exploratory is the kind of creativity used in thought experiments as well, exploring the limits of what an *x* can possibly be, while being bound to what gets to count as an *x*. In other words, it is about exploring the edges of a conceptual space or map.

Transformative creativity allows for paradigm shifts: it isn't about exploring the edges of the conceptual space but about transforming it. Agential realism is an example: it alters the constraints that outlined the previous conceptual space of what get to count as agents by having the audience or the observers of the creative act say or think "wow, I thought this was impossible", "how can this be", "I never thought this might be the case". This is not only about paradigm shifts in science or coming up with new styles in music. Examples may include finding a surprising, unexpected way to win a board game, like chess, or to win a basketball game. An AI, for example AlphaGO, can play chess in an unexpected, surprising way too. As Halina Marta[20] points out, the

suprising moves that AlphaGO makes are afforded by the use of heuristic-driven search algorithms. Is surprise, though, necessary for attributing creativity? It surely seems a nice-to-have prerequisite, but it largely depends on the audience. Children may find pretty much everything to be novel or surprising, whereas communities possessed of domain-specific expertise may not agree upon what gets to count as surprising. Surprise seems to be an unstable criterion: in some cases, it may be relevant, in others it may not.

What it means to genuinely produce something is irrelevant at the level of products. We can admire a painting that seems creative, original, beautiful, aesthetically pleasing for twenty minutes, then someone tells us that it was created by Midjourney. Will we no longer believe that the painting is a creative product? It all seems very subjective. If we are ready to dismiss some object because it was created by an artificial agent, then what underlies our dismissal is based on the processes that led to the production of that object, or on the fact that the agent is the wrong kind of agent. Perhaps an AI is, on average, now deemed to be the wrong kind of agent for creativity ascriptions. The force of current fashion is, however, questionable and subject to change.

4. Attributing creativity to processes: spontaneity, agency

For a process to count as creative, it must be either spontaneous and original, or agential and intentional, or both. These were putative prerequisites that creativity must have (or it would be nice if it had them).

Spontaneity and originality closely relate to surprise because they are not fully predictable. Human and non-human agents alike can be spontaneous, original or surprising. In a political context, such as a conflict, a state can make a spontaneous move, in a surprising manner, in an original way. A robot walking in a room full of obstacles can remove an obstacle or walk around the obstacle in a new, unexpected, surprising, spontaneous way. If it's spontaneous, then we (or the

agent) don't see it coming.

One might think that if the robot saw it coming, it executed a plan, followed some mechanical rules. But that need not be. We can see something coming yet hold the belief that it will not, act as if it will not, completely forget about it and still be taken by surprise when we see it spontaneously happening. Maybe we fail in introspection to account for how it happened. Maybe we were paying attention to something else, got distracted and then spontaneity hit. Maybe we were ignorant of the outcome, but our mind continued some machinations on how to achieve some blurred desired result, and a missing piece of the puzzle came to our attention. That's when we got that *aha* moment and produced a novel, surprising, spontaneous thing. Or maybe there was no *aha* moment, we simply have no clue about how we came to produce the creative outcome we produced, but we come up with an explanation that fits, nonetheless. Or maybe we actually planned for it, but we act as if though it was a spontaneous act. Can we always tell the difference?

Whether spontaneity is taken to be genuine or not, will depend on a phenomenological description on how that came to be the case – and one can argue that artificial intelligence, large language models and robots have no phenomenal consciousness and no experiences whatsoever. Even though it seems counterintuitive to think that they do, we cannot clearly dismiss it. We yet have no consensus on what phenomenal consciousness is. Illusionists about consciousness may distinguish what seems to execute some processes from what genuinely executes some processes. AI systems nowadays do not always operate in a rule-based way, as previously mentioned MCT's include an exploration parameter designed to allow an AI to simulate combinations that were not fed into the training session[21]. If we either accept that AI systems can have even a minimal kind of consciousness, or deny that *aha* moments are necessary for spontaneity, then AI systems can be creative even in a strong AI sense.

On to intentionality and agency. Some think creation can only be sourced in a (the) right kind of *agent*. Others attribute creativity variously to natural phenomena (such as an arrangement of stones, the way in which the sun sets over the hills, or the way in which some

flowers superbly blossom in the corner of the garden, or the way in which the wind blows the leaves in the air in a cinematic way), or to evolutionary processes or natural selection, even if these were created by nature too. (I leave aside authored accidents, e.g. someone accidentally drops some paint, but the result is considered creative; they clearly work for AI too.)

What should we take agency to be? If one takes a naturalistic conception of agency, then, according to Korsgaard, one is an agent as long as *one's mental states cause one's movements*[22]; on the other hand, on a normative conception, *agency is normatively constituted, in the sense that the capacity of agency depends on normative relations and the realization of said capacity depends on conformity to (or letting oneself be guided by) norms*[23]. Naturalistic views owe us an explanation of what mental states and causes are, which will impact claims about both human and strong AI agency. Hence, if we take agency as criterial for creativity, naturalistic explanations will impact claims about AI creativity. However, it is very much an open question whether or why AI systems would lack the information-processing capabilities underwriting mental states, according to naturalistic views. A normative view on agency, on the other hand, generally allows for non-human entities, such as states, to count as agents as well. No compelling argument against AI systems' ability to count as agents seems to have been put forth, neither from a naturalistic, nor from a normative conception of agency.

Is nature the right kind of agent? Is AI the right kind of agent? How should agency be exercised? If an artist uses nature or an AI as a tool in their performance, or as a tool to achieve some product, would we say that the only agency that was exercised was the artist's agency? Or is it co-created? Here is where *intentionality* comes in, since some argue that creativity requires the intention of the agent to produce the creative result. Creation needs creator(s). But is this not in conflict with spontaneity and with surprise? Intending to create something new, in a spontaneous (non-intentional?) way and such that the result is an (unintended?) surprise[24]. If the intentionality criterion is correct, then when we say that something is creative what we mean is that this resulted from an intentional process. If the surprise criterion is

correct, then what we mean when we say something is creative is that it is an unexpected, unforeseen and/or an unpredictable product/performance. If the spontaneity criterion is correct, then what we mean when we say something is creative is that it was produced without intention, there was no representation of what one wanted to produce. For a weak version of AI, again, none of these criteria pose an issue. However, for a strong version of AI creativity, there are multiple interpretations: we can say that an AI is not an agent because it lacks some other characteristics that humans have; we can say that it has no intentionality; we can say that an AI system co-creates with a human agent, acting as an enabler; or we can say that an AI does have intentionality, but it is the extended intentionality of coders and/or the company that produced it. It would be unmotivated to say that it has no spontaneity and originality, since new AI systems successfully resist Ada Lovelace's objection[25]—which states that a computer cannot create generate any original output, it will only do so as instructed by a programmer. These questions are all intricate and worth in-depth probing; absent further argument, however none decide against strong AI creativity—at least for the time being.

5. Requirements for attributing creativity to agents: consciousness, imagination

An agent is creative if it performs creative acts, produces creative works or if those works are the result of a creative process, according to Boden[26]. What makes an agent the right kind of agent for creativity ascription? I have already discussed intentionality and agency. Now, is it really the case that creative agents all possess consciousness of what they create, and that products emerge from their imagination? If *consciousness* is needed for creativity, we should find a way to make sense of the fact that all people who are creative are conscious and/or aware of what they are doing. Depending on your stance on consciousness, there are several ways one goes about it: if you are an eliminativist about consciousness and you think consciousness is an

illusion, then you must either also consider creativity an illusion, or you must dismiss the consciousness requirement. If, however, you are functionalist about consciousness, then some cognitive architectures allow for consciousness, and some others do not. Accordingly, it would seem that some cognitive architectures allow for creativity whereas others do not allow. It is patently unobvious why only human architectures could allow for creativity and not AI systems too. And panpsychists about consciousness have no reason to deny machine consciousness or machine creativity.

It is unobvious to me what the relationship between consciousness and creativity is, and which particular aspects of consciousness bear on creativity. There is also the problem of benchmarking: if one is to design a way to look for consciousness in AI, we need to know what exactly to look for. Conversational abilities so that it can provide verbal reports? Large language models have this. Are we looking for embodiment? Some AI systems gain sensory grounding when we provide them with a robotic body. Are we looking for carbon-based neural systems? Chalmers has argued that silicone-based minds can work just as well[27]. Are we looking for selfhood? For consciousness unity and continuity? These are controversial topics; no ultimately convincing evidence currently exists for the conjunction that consciousness is required for creativity *and* no AI could be conscious.

It equally seems unmotivated to think that *imagination* is required for creativity. We don't necessarily imagine the things we want to create, if those are so novel and unthought of. We might think of ideas, explore possibilities. Even if we do, that doesn't entail imagery – we need have no representation of the outcome. (Do *you* experience imagery whenever you create something?) Water down what we mean by "imagination" so as to *entertain* such and such thoughts: a conceptual space not bound by rules governing reality and decoupled from imagery. An artificial intelligence can also simulate different outcomes, it may even have a sort of conceptual space formed by its stored data.

6. Conclusion

Recognizing that an AI can be engaged as a creative agent, an enabler or a partner in the creative process, allows artists to maintain their legal rights; it in no way leads to removing merit for their works. If we consider claims about AI taking over artists' work and look at the law as is (*lex lata*), we find that is founded on an anthropocentric view – artworks are copyrightable only if these are produced by humans – as Julia Kalkpokiene and Ignas Kalpokas stress in *Creative Encounters of a Posthuman Kind – Anthropocentric Law, Artificial Intelligence, and Art*[28]*.* AI-generated output is not protected by intellectual property law. They argue that upholding an anthropocentric view on AI copyrightability has a twofold outcome. On one hand, this means that AI is allowed to produce a lot of free copyright material, at a very fast pace, and this puts pressure on artists to produce just as fast and just as much, to be able to compete effectively. On the other hand, with so much free-copyright material, oversupply leads to a drop in the cost of artworks and calls for artists to sell their works cheap. Awarding copyright to AI may slow down the impact on the demand for human-generated work, but not eliminate it completely. On the other hand, it may offer other opportunities for artists. If novelty and originality are required for copyright eligibility, human artists can evaluate and grant originality to a work of art produced by an AI. Either way, maintaining an anthropocentric view on creativity and copyrightability of creative works seems unmotivated.

Renouncing the exceptionality of human creativity would open a pathway for better understanding the concept in a multi-perspectival way – perhaps it comes in degrees, perhaps it can be extended to artificial intelligent systems or to non-human agents. The collaboration between artificial intelligence systems throughout the creative process calls for policies that will protect both artists and the ones responsible to produce the AI system itself. Further research should address potential legal, ethical and moral implications of AI use throughout a person's creative process without refraining, in a principled way, from ascribing creativity, agency and intentionality to

artificial intelligence. Special attention is needed to what impact policies that consider how AI may qualify for authorship might have on the job market.

Notes:

[1] Clark, Andy. 2003. *Natural-Born Cyborgs: Minds, Technologies, and the Future of Human Intelligence* (Oxford: Oxford Univ. Press).
[2] See Plat. *Ion* 530a, Plat. *Phaedrus* 227a Plato and Plat. *Euthyd*. 271a
[3] As Stokes noted in his *Metaphysics of creativity*: "Geniuses (or creative persons) possess no intrinsic value qua geniuses. Rather, we value geniuses for one of two reasons. We may value a genius for the artworks s/he creates. Alternatively, but not exclusively, we may value a genius for the artistic processes used in creating art." See Stokes, Dustin. 2008. "A Metaphysics of Creativity". In, *New Waves in Aesthetics. New Waves in Philosophy*. Eds. Stock, K, and K. Thomson-Jones (Palgrave Macmillan, London).
[4] Boden, Margaret A. 2004. *The Creative Mind: Myths and Mechanisms* (London: Routledge).
[5] Kronfeldner, Maria E. 2009."Creativity naturalized". *The Philosophical Quarterly* 59, no. 237:577-592.
[6] Gaut, Berys, and Matthew Kieran. 2018. *Creativity and Philosophy* (London: Taylor and Francis).
[7] Carruthers, Peter. 2006. *The Architecture of the Mind* (New York: Oxford University Press).
[8] Kieran, Matthew. 2014. "Creativity as a Virtue of Character". *The Philosophy of Creativity*, May, 125–44.
[9] *ibidem*
[10] Kozbelt, Aaron. 2004. "Originality and technical skill as components of artistic quality". *Empirical studies of the arts* 22, no. 2: 157-170.
[11] Bartow, Ann. 2006. "Fair Use and the Fairer Sex: Gender, Feminism, and Copyright Law". American University Journal of Gender, Social Policy & the Law. 14, no. 3: 551-584.
[12] Craig, Carys J. 2014. "Feminist Aesthetics and Copyright Law: Genius, value, and gendered visions of the creative self". In *Protecting and Promoting Diversity with Intellectual Property Law*. Eds. Calboli, I. and S. Ragavan (United Kingdom: Cambridge University Press)

[13] Fisher, John Andrew. 1996. "The Myth of Anthropomorphism". In *Readings in Animal Cognition*. Eds. Bekoff, M., and D. Jamieson (Cambridge, Mass.: Mit Press)

[14] Epley, Nicholas, Adam Waytz, Scott Akalis, and John T. Cacioppo. 2008. "When we need a human: Motivational determinants of anthropomorphism". *Social cognition* 26, no. 2: 143-155; Waytz, Adam, Kurt Gray, Nicholas Epley, and Daniel M. Wegner. 2010. "Causes and consequences of mind perception". *Trends in cognitive sciences* 14, no. 8: 383-388; Jacobs, Oliver L., Farid Pazhoohi, and Alan Kingstone. 2024. "Large language models have divergent effects on self-perceptions of mind and the attributes considered uniquely human". *Consciousness and Cognition* 124: 103733.

[15] In the psychological literature on creativity, some studies found strong correlations between creativity and theory of mind (TOM). A more recent study even proposed that theory of mind could be a requirement for creativity. This might start a line of research that could reveal cognitive mechanisms that underlie creativity and TOM. These exceptions aside, broadly speaking, TOM is not currently considered to be a central feature of creativity or an essential prerequisite– see Beloyianni, Vassiliki, Dimitrios Zbainos, and Maria-Paraskevi Karagianni. 2024. "From mindreading to originality: Exploring the relationship between Theory of Mind and Creativity across the lifespan". *British Journal of Developmental Psychology*, 42.2: 215-233.

[16] Suddendorf, Thomas, and Claire M. Fletcher-Flinn. 1997. "Theory of mind and the origin of divergent thinking". *The Journal of Creative Behavior* 31, no. 3: 169-179.

[17] Suddendorf, Thomas, and Claire M. Fletcher-Flinn. 1999. "Children's Divergent Thinking Improves When They Understand False Beliefs". *Creativity Research Journal* 12 (2): 115–28.

[18] Boden, Margaret A, *ibidem*

[19] Note that for Boden psychological creativity seems fundamental, in the sense that something that is H-creative (historically creative) must be P-creative, which means it has to be novel to the creator

[20] Halina, Marta. 2021 "Insightful artificial intelligence". *Mind & Language,* 36, no. 2: 315-329.

[21] Halina, Marta, *idem*. She points out this exploration parameter allows recent AI systems to provide surprising, original, spontaneous outputs.

[22] Korsgaard, Christine M. 2014. "The normative constitution of agency". In *Rational and Social Agency: The Philosophy of Michael Bratman*. Eds. Manuel

Vargas and Gideon Yaffe (Oxford: Oxford University Press). p.199
[23] *Idem*, p.193
[24] A challenge could be raised if we consider the spontaneity criterion, in the sense that a creative idea is produced without intentional control, as Gaut and Krondfeldner think, although Gaut argues that spontaneity comes in degrees.
[25] *Commonly* referred to as Ada Lovelace's objection, stemming from A. M. Turing.1950. "Computing Machinery and Intelligence". *Mind* 49: 433-460. Ward argues that the term *original* [output] is a misnomer, and that the way in which it was interpreted by Turing in relation to Ada Lovelace's note is somewhat limited and she put forth a more complex view on human–machine collaboration. See Ward, Megan. 2020. "Victorian Fictions of Computational Creativity". In *AI Narratives: A history of imaginative thinking about intelligent machines*. Eds. Stephen Cave, Kanta Dihal, and Sarah Dillon (Oxford, Oxford University Press). p.144–164
[26] Boden, Margaret A, *ibidem*
[27] Chalmers, David J. 2023. "Could a Large Language Model Be Conscious?" ArXiv:2303.07103 [Cs], March (March). https://arxiv.org/abs/2303.07103.
[28] Kalpokiene, Julija, and Ignas Kalpokas. 2023."Creative encounters of a posthuman kind–anthropocentric law, artificial intelligence, and art". *Technology in Society* 72: 102197.

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