CREATIVITY IN ART, SCIENCE, AND MIND: Abstracts and speaker biographies
26 July 2018 - 27 July 2018

Claire Anscomb (Kent) "Creative Agency and Co-Working in Artistic Practice"

Friday, 14:00

In this paper, I investigate three common artistic practices, working from commission, collective working and artistic collaboration. From this, I determine that there are three different roles that can be assumed in the production of an artwork: executive agent, executive representational agent and technical agent. Executive agents originate the idea for and guide the creation of the work. This role might be assumed by someone who commissions a work. Executive representational agents determine what features the work will have. This role might be fulfilled by workshop leaders, for example Jeff Koons. Finally, technicians act to materially realize the artwork. This role might be fulfilled by workshop assistants. Very frequently it is the case that an artist will assume all three roles simultaneously. However, in some cases they will only assume one or two of these roles in the production of an artwork. In this paper, I determine whether this diminishes the creative agency of the artist and in doing so I also assess in which role creative agency finds its fullest expression in art production.

The basis for my investigation is Gaut's view that creativity is an agential disposition, which entails a spontaneous aspect. I propose that we should view creative agency in art production as a form of diachronic agency in which an agent works with 'broader intentional' goals, rather than intentional actions as has frequently been supposed by philosophers. The realization of these goals or intentions then, need not necessarily be actions that the agent themselves has carried out, but rather refers to the production of artistic artefacts or states that the agent intends to achieve. This then, allows room for spontaneity and enables agents with the disposition to creatively produce new and valuable products that fulfil their artistic intentions. Given this, whilst executive agents might be responsible for the production of a new and valuable work and while technicians can employ creative processes to manifest the features of an artwork, it is executive representational agency that I identify as the role in which creative agency finds its fullest expression in art production. Whilst all three roles are important for the creative production of a valuable product it is executive representational agents who determine the features or representational qualities of the artwork and oversee the processes undertaken to realize these. There can however, be more than one executive representational agent for an artwork, and when this occurs I propose that this is an act of artistic collaboration and not just collective working, as we find in cases whereby an artist works with a technician. Examining a case study of Rauschenberg's print practice, however I argue that the assistance of technicians does not necessarily inhibit the executive representational agent to act spontaneously and so find that creative agency is not necessarily diminished in collaborative and collective working practices in art production.

Claire Anscomb is currently completing her PhD at the University of Kent in History and Philosophy of Art. The title of her thesis is: On the Significance of Automaticity in Image-Making Practice: The conflation of automatic and manugraphic media in recent art history, theory and contemporary art. She has recently presented papers at the British Society of Aesthetics Annual Conference, American Society for Aesthetics Pacific Division Meeting and the European Society for Aesthetics Annual Conference. She has published in the European Society for Aesthetics Proceedings and is the current co-editor of Debates in Aesthetics.

Adrian Currie (Exeter/Cambridge) "Non-Agential Creativity"

Friday 15:00

I think there is good reason to want an account of creativity that doesn't tie it to agents or individuals. First, creativity is often ascribed to outputs and processes—and not all outputs and processes are due to agents. Second, if creativity is importantly linked to knowledge-production, and knowledge-production is best thought of as a population-level phenomena, then we should develop ways of understanding creativity at the population-level. Third, some arguments for human exceptionalism turn on our capacity to be creative, and I suspect our ability to articulate and critique such arguments are marred if we cannot get a non-anthropocentric grip on creativity in the first place: decoupling creativity from agenthood is one way of doing this. In light of these considerations, I present an account of creativity inspired from recent work in the social epistemology of science, AI and developmental science which (roughly speaking) takes creativity to be a strategy for exploring a problem space. Such an account is applicable to both individuals and populations and underwrites important questions about the incentive structures of science. However, it also misses crucial aspects of what it is to be creative: in particular, it cannot differentiate between a random search and the kind of intelligent speculation often identified with creative strategies. I'll consider a few ways of differentiating between random searches and true creativity, but ultimately argue that the best approach is to take creativity in the sense I define it as one important dimension of creative intelligence.

Adrian Currie is a philosopher of science. He's primarily interested in how scientists successfully generate knowledge in tricky circumstances: where evidence is thin on the ground, targets are highly complex and obstinate, and our knowledge is limited. This has led him to examine the historical sciences – geology, palaeontology and archaeology – and to argue that the messy, opportunistic ('methodologically omnivorous') and disunified nature of these sciences often underwrites their success. His interest in knowledge-production has also led him to think about comparative methods in biology, as well as the

natures of, and relationships between, scientific tools such as experiments, models and observations, and their use in sciences whose targets are less amenable to lab work such as ecology and existential risk, for instance. He is the author of *Rock, Bone and Ruin: An Optimist's Guide to the Historical Sciences* (MIT Press).

Stacie Friend (Birkbeck, University of London) "A Real Limit on Fictional Creativity"

Thursday 16:30

Both creativity and fiction are closely associated with the imagination. On the one hand, creativity often seems to involve, or even to require, not being constrained by how things really are. As some philosophers have put the point: because the imagination is 'non-truth-bound' (Stokes), it serves as an ideal 'vehicle' for creativity (Gaut). Similarly, works of fiction seem not to be bound by the truth; they are filled with characters, situations and events made up by the author and imagined by readers. Not coincidentally, one significant dimension along which fictions and their authors count as creative concerns the originality of their inventions, for example the fantastic storyworlds of Tolkien and Rowling. Although it is tempting to think that this kind of creativity is not bound by truth in any sense -- that there are no limits on how far imagined storyworlds can depart from the real world -- in this paper I argue that ordinary truths about the real world constitute an important constraint on authorial creativity.

Stacie Friend is Senior Lecturer in Philosophy at Birkbeck College, University of London. She has published widely in the philosophies of art, language and mind, especially concerning our engagement with fiction. She is the Vice President of the British Society of Aesthetics, an organiser of the London Aesthetics Forum and a co-investigator on the Leverhulme Trust Research Project 'Learning from Fiction: Philosophical and Psychological Perspectives' (2018-2021).

Berys Gaut (St Andrews) "Group Creativity"

Friday, 16:30

Group creativity is everywhere: research teams, jazz groups, filmmaking groups, even companies can be creative. Yet group creativity is deeply puzzling. To be creative an entity requires a complex mental life; but how could a group possess a mind, let alone a complex one? It seems more reasonable to hold that group creativity is not a real phenomenon, but is merely the summed creativity of the individuals forming the group. There is also much empirical evidence that groups are no more creative than their members. In this paper I examine the conceptual and empirical challenges to group creativity, defend its existence, and offer an explanation of how it is possible.

Berys Gaut is Professor of Philosophy at the University of St Andrews, and President of the British Society of Aesthetics. He has written numerous articles on aesthetics, creativity, and the philosophy of film. He is the author two monographs, and is currently working on a monograph on the philosophy of creativity. He is the co-editor, with Matthew Kieran, of Creativity and Philosophy (Routledge, 2018).

Marta Halina (Cambridge) “Insightful AI”

Friday, 9:15

In March 2016, Google DeepMind’s computer program AlphaGo surprised the world by defeating the world-champion Go player, Lee Sedol. Go is a strategic game with a vast search space (including many more legal positions than atoms in the observable universe), which humans have been playing and studying for over 3000 years. Watching the tournament, the Go community was struck by AlphaGo’s moves-they were surprising, original, “beautiful", and extremely effective. The moves were described as “creative” by the Go community and in follow-up talks on the subject, Demis Hassabis--leading AI developer and CEO of Google DeepMind--defended them as such. Should we understand AlphaGo as exhibiting human-level insight? Answering this question requires having an account of what constitutes insightful thought in humans and developing tests for measuring this ability in nonhuman systems. In this talk, I draw on research in cognitive psychology to evaluate contemporary progress in AI, specifically whether new programs such as AlphaGo are best understood as exhibiting insight.

Marta Halina is University Lecturer in Philosophy of Cognitive Science at the University of Cambridge and Project Director at the Leverhulme Centre for the Future of Intelligence. Her research includes work on nonhuman animal mindreading, gestural development, mechanistic explanation, and the use of comparative methods in cognitive science.

Matthew Kieran (Leeds) “The fountain of creativity”

Thursday, 10:15

What is creativity and why is being creative worthwhile? Much contemporary debate gives an answer to the first part of the question that is then taken to answer the second: processes that give rise to the generation of that which is new, or that which is new and valuable. By contrast this paper will argue that creativity as such need not involve the generation of new outputs. Nonetheless, we are often most interested in the most valuable kinds of creativity. So, what makes certain kinds of creativity more valuable? The paper will then explore different ways in which creative development and the most

admirable kinds of creativity stand in relation to individuality. It is argued that this will explain a significant part of what we value about the most admirable kind of creativity.

Matthew Kieran is Professor of Philosophy and the Arts at the University of Leeds. He is the author of Revealing Art (Routledge), co-editor of the recently published Creativity and Philosophy (Routledge), and author of numerous articles on creativity, art and morality. Matthew is currently writing a book for Oxford University Press on creativity and character.

Anton Killin (Australian National University) "Evolving creativity: novelty in vocal communication traditions"

Friday, 11:30

There are sure to be interesting connections between the evolution of language, musicality, and creativity to be investigated. These capacities are often viewed as characteristically human--sometimes even distinctively human. However, in this talk I will explore potential analogies in the animal kingdom, and the prospects for integrating lines of evidence in a comparative evolutionary research framework. This is one in-road into evolutionary theorizing about such capacities in the hominin lineage. Take, for example, the vocal communication tradition of humpback whale populations (sometimes called "song"). Humpbacks are vocal learners--and the evolution of vocal production learning in the hominin lineage is a key constraint for evolutionary theorizing about music and language since no other great apes are vocal learners. Better understanding the social transmission and cumulative evolution of whale vocal traditions, and the effects of novelty bias and production (that is, including effects of creative novelty and plasticity), has the potential to shed much light; after all, convergent traits in general can inform our understanding of underlying mechanisms, allow identification of constraints or mechanisms required for the behaviours under study, and test certain hypotheses concerning the evolutionary pressures that may have selected for them.

Anton Killin is a Postdoctoral Research Fellow in the School of Philosophy and the Centre of Excellence for the Dynamics of Language (CoeDL) at the Australian National University. Anton's postdoc research focuses on the evolution of music and the evolution of language. He also has research interests in philosophy of the arts and philosophy of the sciences, more generally. In addition to his CoeDL project he is currently engaged with a research project on the intersection between philosophy and archaeology with Sean Allen-Hermanson & Marilynn Johnson (Florida International University), including co-editing an issue of *Topoi: An International Review of Philosophy* on this interdisciplinary topic.

Caterina Moruzzi (Nottingham) “Robo-Bach: Can Artificial Intelligence be Musically Creative?”

Thursday, 11:30

The last decades witnessed an exponential proliferation of AI music generation programs. The hard-coded algorithmic composition systems of the outset are progressively giving way to a more advanced use of neural networks and Deep Learning software. The Mozart and Lady Gaga of the future are a set of silicon chips: Jukedeck, Flow Machines, Aiva and other programs are gaining more and more followers in many music platforms, raising a growing enthusiasm and consent among their fans.

In this paper I discuss the impact of AI on one of the key topics in the philosophy of art: the nature and evaluation of musical works. The question I address is the following: “Can a computer create a musical work?”. In attempting to provide an answer, further questions about the creativity and intentionality exhibited by AI will emerge.

In the first section of the paper I identify a necessary requirement for musical works: being created by an act of intentional creativity. I argue that the evaluation of something as creative or intentional is influenced by our subjective judgement. As a consequence, it seems impossible to objectively assess whether a computer can create a musical work. What we measure when we provide an answer to this question, in fact, are not the computer’s accomplishments but instead our subjective evaluation of them.

In the second part of the paper, then, I suggest an alternative definition of minimal creativity (CREATIVITYm) which focuses on the autonomy needed by a system to produce a creative output. I claim that software like Jukedeck or Flow Machines, where the human presence is essential for performing the task of composing music, do not create musical works. Such music generators can at best be considered an extension of the programmer’s or user’s minds. On the other hand, I argue that the application of generative adversarial networks (GANs) to music generators may provide them with a level of autonomy sufficient to deem them able to create musical works.

The final claim of the paper is that shifting the focus from the assessment of the creativity of the system to the consideration of its autonomy is beneficial under many respects. First, it allows us to give an objective judgement on what we commonly call ‘creative acts’. Second, it helps us address the fears that may rise in respect to the emergence of a ‘superintelligence’ which in the future might overcome humans also in an, arguably, human prerogative: the creation of Art.

Caterina Moruzzi is a PhD student and Research Assistant at the Departments of Philosophy and Music at the University of Nottingham. She recently submitted her thesis where she proposes a new account for the ontology of musical works and for the concept of authenticity. Her research interests include the impact that new technologies have on the production and reception of music. At the moment she is collaborating with the Department of Music at the University of Nottingham to work on an impact case study to submit for REF 2021.

Alice Murphy (Leeds) "Creativity in Scientific Thought Experiments"

Thursday 14:00

Thought experiments have played an important heuristic role in major scientific advancements. Take, for example, Einstein's use of thought experiments in the development of special relativity. The philosophy of science debate on the nature of thought experiments and their epistemic value has been based around two accounts: Norton's reductionist account (2004), and Brown's platonist alternative (2004). Norton asserts that thought experiments are arguments, and ought to be analysed as such. Here, thought experiments' creative qualities are deemed epistemically redundant. On the other hand, Brown states that thought experiments lead us to new knowledge by giving us access to the laws of nature that exist in a platonic realm. Again, the creative aspect of thought experiments is diminished, and their fruitfulness is characterised in terms of perception. That is, in conducting a thought experiment, we are able to "perceive" the laws of nature with our "mind's eye".

In this paper, I argue the best way to capture the creative dimension of thought experiments is by focusing on the role of the imagination. In particular, the issue I will address is: What is the nature of the imagination in their performance? In the philosophy of science literature, it has generally been taken to be imagery like. That is, imaginings that are involved in the process of conducting a scientific thought experiment are said to consist in forming a picture in the mind's eye; a visual form of imagination. In a recent paper, Roman Frigg and Fiora Salis (forthcoming) have challenged this. They develop an alternative account of the imagination where they argue that the presence of mental imagery is neither necessary not sufficient. Instead, they claim that it is the propositional form of the imagination that is necessary, with no visual representation of the scenario required in order for us to derive the outcome.

My aim is to push against Frigg and Salis's view. Although I think that the imagination in thought experiments cannot always be characterised in terms of imagery, I disagree with the scope of their claim. We can, of course, rationally reconstruct thought experiments into propositional or argument form (as Norton claims), but at least sometimes, this will

lead us to miss important creative features involved in their practice. I argue for a pluralist stance; there will be different requirements of our imaginative capacities when engaging with different thought experiments, and I will demonstrate this with a variety of examples from science. To do this, I will call upon recent literature in the philosophy of mind on the nature of the imagination, especially the work of Magdalena Balcerak Jackson (2016). I will conclude that the creative element associated with thought experiments varies according to context.

Alice Murphy is a 2nd year philosophy PhD student in the school of PRHS at the University of Leeds. Her research looks at the nature and role of the imagination in science, focusing on the use of thought experiments, and how they compare with other methods in science such as experiment, computer simulations and modelling more generally. She is also interested in exploring connections between the philosophy of science and the philosophy of art, and has co-organised conferences on Imagination in Science and the Aesthetics of Science at the University of Leeds, and an interdisciplinary workshop on the imagination at the University of Sheffield. Alice has recently been a graduate research trainee at McGill, and previously studied at Warwick and Bristol University. She is also a committee member of the Leeds Minorities and Philosophy chapter.

Julia Sánchez-Dorado (University College London) “Creative similarity in representational practices”

Thursday, 15:00

In *The Dappled World*, Cartwright (1999) argued that the whole point of the tradition that generates both the syntactic and the semantic views is the elimination of creativity in the use of scientific theories to treat the world. The syntactic and the semantic views are equally cases of the ‘vending machine’ approach, by which a scientific theory is fed with some input and it drops out the desired output in the form of a fully formed model (Cartwright 1999: 84-5). There is no place for genuine creativity in this approach because scientific models seem to be already contained in the theory, waiting to be extracted from it. Contrary to this, the ideas of ‘representational models’ (Giere 1999, Cartwright 1999) and ‘models as mediators’ (Morgan and Morrison 1999) set up a new trend of discussion in philosophy of science that highlighted the hard work, creative imagination, and also human fallibility that goes into the construction of scientific models.

In this paper, I address one central element of the debate regarding how scientific models represent, namely, the postulated similarity between models and their target systems in the world. In the spirit of Cartwright’s criticism to the syntactic and semantic views, I

propose the notion of “creative similarity” to emphasize that, if similarity plays a role in the epistemic success of scientific models, the study of actual practices of representing shows us that that similarity has to be understood as humanly shaped and genuinely creative. I spell out what the notion of “creative similarity” involves, how it is different from other characterizations of similarity in the debate of representation, and how it allows us to explore one particular manifestation of the importance of creativity in scientific practice. Moreover, I introduce some examples of practices of depiction in the arts to help illustrate the implications of the notion of creative similarity (Kandinsky 1991, Gombrich 1972, Elgin 2002). In this, central problems in contemporary aesthetics and philosophy of science are brought one step closer.

The notion of “creative similarity” in the context of affording an account of epistemically successful representation involves three main things. One, it stands in opposition to the idea of “bare” or “pure” similarity, traditionally implied when references to similarity are made in the debate of representation (French 2003, Bartels 2006). While “bare similarity” concerns the relationship between two objects, a vehicle and a target, and conceals an aspiration to obtain perfectly similar images of certain targets in the world, “creative similarity” involves a triadic relationship, where epistemic agents, their purposes, and more importantly the standardized uses of models in practice define to a great extent what similarities are. Two, “creative similarity” involves that relevant similarities are compatible with relevant distortions (also idealizations, simplifications, abstractions) in the practice of representing, and can enrich each other if adequately combined (van Fraassen 2008). This contrasts with the conception of similarity and distortion as necessarily pulling in opposite directions and diminishing each other. And three, “creative similarity” involves a dynamic process of trial and error in practices of representing. What ultimately makes similarity creative is that when an adequate combination of relevant similarities and distortions is stabilized, a generative interplay that can reveal previously unnoticed connections in the natural world takes place.

Julia Sánchez-Dorado is a PhD candidate in Philosophy of Science at University College London (Department of Science and Technology Studies). Her research focuses on the problem of scientific representation and the role of similarity in practices of modelling. She is also interested in the connections between philosophy of science and other disciplines such as aesthetics concerning the debate of representation. She has recently published “Methodological lessons for the integration of philosophy of science and aesthetics: the case of representation” (in Bueno, O. et al. (2018) Thinking about science, reflecting on art. Routledge).

Henry Shevlin (Cambridge) “Creativity and insight in animals and humans”

Friday, 10:15

Insight learning is a central form of creativity. It can be roughly characterised as involving the sudden appearance of a solution to a problem that emerges not from conscious trial and error, but from the "incubation" of ideas (Young, 1939; Poincaré, 1904). In this talk, I present an overview of insight learning in both humans and animals, and suggest that it is fundamentally linked to unconscious processing. More specifically, I claim that what is characteristic about insight learning is a three part process involving conscious deliberation, unconscious incubation, and conscious revelation. This notion of insight learning accurately captures both folk psychological and phenomenological dimensions of insight. However, it also threatens the idea that insight learning involves distinctively productive forms of cognition, suggesting instead that insight is a matter of introspective surprise as much as fundamentally creative reasoning. I close by suggesting that while many instances of insight may be good examples of creative thought, there is no constitutive connection linking the two.

Henry Shevlin is a Research Associate with the Kinds of Intelligence project at the Leverhulme Centre for the Future of Intelligence. His main research areas are philosophy of mind, philosophy of cognitive science, and philosophy of biology. He has particular interests in perceptual experience, animal cognition, and artificial intelligence.