

## *Editorial: The New Science of Possibility*

What is possible? Does the future really contain multiple alternative possibilities, or is everything determined in advance and inevitable? Where do possibilities come from? And how is human life shaped by awareness of possibilities, and adapting to situations defined by multiple alternatives? This journal, *Possibility Studies and Society*, was designed to explore these and related questions.

The current special issue is a result of a workshop sponsored by the Templeton Foundation in September 2022 aiming to bring together multidisciplinary scholars from different career stages to discuss the new science of possibilities. Against the backdrop of the wonderful countryside around Dublin, the contributors to this special issue discussed ideas relating to how possibility is a core facet of the human experience (Glăveanu, 2023; Ross, 2023a) and aimed to lay some of the foundation stones for the emerging academic field of Possibility Studies. In this editorial, we will summarise the papers but also draw together some of the key themes and tensions that we believe will drive the field as it emerges from an entanglement of different disciplinary perspectives.

Each paper in this special issue draws from different domains' perspectives on what it means to say that the possible is essential to human becoming: Baumeister draws from the perspective of future thinking, social psychology and agency; Beghetto has a background in education; Copeland is an ethicist concerned with how ethics can be enacted in everyday life; Paulson and DeDeo are cognitive scientists interested in possibilities in AI; Glăveanu wishes to bridge the academic-practice divide and provides a framework for integration; List is a philosopher with a background in agency; Ross provides a view of cognition which emphasises the relationship between internal and external mechanisms; Sjästad and Bo bridge research in behavioural economics and psychology. This combination exemplifies what is perhaps both a strength and a weakness of Possibility Studies as a discipline. It is a strength because many of the key questions are already being asked in different ways — and a weakness because parallel efforts in different fields may create redundancy. Nevertheless, there are some key themes which recur across the papers which we would like to draw out here and demonstrate how a combination of disciplinary perspectives can lead to greater insights.

First, we note how two core concepts, the future and action, combine across several different papers. Multiple possibilities are associated more with the future than the past, and indeed the future presents itself to human agents as a matrix of alternative possibilities (Baumeister et al., 2018). Action is often a matter of sizing up the various possibilities and initiating behaviour aimed at producing some possibilities rather than others come true. This combination leads us to understanding that possibility and imagination can be distinguished by the role of future-oriented action. Possibility thinking is for doing rather than contemplation. Despite ongoing considerations across the field of possibility studies as a whole (see for example Corazza, 2023; Poli, 2023), across these papers, the conception of the possible is that which exists within an actionable space and this space is one which lies ahead. While it may be

possible for multiple possibles to exist in the past (Byrne, 2023), especially as different possible interpretations, the focus of these papers was on the future and particularly the link between future and action. Thus, the link between the two themes of prospection and action is a pragmatic assessment of possibilities. How people come to understand and frame what is possible is a key consideration (see also Ormerod, 2023) of the papers in this collection. Thus, pragmatism both in the folk and more precise academic understanding undergirds the view of possibility in these papers. Because of this, possibility as understood as essentially emerging from the relationship between agent and world. Children's sense of possibility changes as their physical abilities change (Kushnir, 2023), worries either broaden the calculation of possibilities to avoid it (Baumeister, 2023) — or they narrow it to focus on the problem (Sjåstad and Bo, 2023), ethics is not a rarefied discipline but one which has to respond to in-the-moment decision-making (Copeland, 2023), and ideas are generated from intrusions from the world (Ross, 2023).

Poulsen and De Deo (2023) show us that this possibility selection is not simply a stochastic exploration of potential space. They use the AI Large Language Model (LLM). ChatGPT4 to show how human possibility generation is constrained compared to the wide-ranging exploration of the semantic space of a LLM. They suggest that there are clear heuristics which lead to this smaller range of possibilities, perhaps based on a lower level of base knowledge and other traditional heuristics such as representativeness. They note that the way that LLMs are programmed means that they do not suggest immoral actions to the dilemmas (which interacts with the developmental stages suggested by Kusnir, 2023) that are presented and the reliance on most probable answer means that they are less extreme than some contributions from human agents. However, they lay the ground for understanding that how the human agent constructs possibilities involves psychological factors which constrain the exploration of the space. In other words, in theory, anything is possible but anything is not what human agents generate. The key question and one that concerns many of the writers in this special issue is the practise of possibility.

Baumeister's (2023) contribution builds on his pragmatic prospection theory, that is the finding that while people tend to think about the future around three times as much as the past, they think about the *near* future in which they would be called upon to act and ahead of which they therefore have to plan and make decision. This requires the ability to conceive of multiple alternative futures and act accordingly. What becomes clear is that these multiple possibilities are not randomly sampled but instead are pragmatically selected to be those which are of most interest and most relevant for guiding current action. The nearness of this future is what acts to constrain the generation of possibilities. Pragmatic prospection is undergirded by two main processes: the desired outcome (inherently optimistic) and the way to go about it (more tilted towards the realistic or even pessimistic).

The relationship between an agentic optimism and a realistic pessimism is key to understanding how possibilities are generated in the face of an uncertain future. Sjåstad and Bo (2023) go into more detail about the oscillation between optimism and pessimism. They are clear that the envisaging of possibilities is not some

abstract or idle contemplation but something which is rooted *in action*. However, they make sense of contradictions in the research literature by suggesting that thinking about the future can have two different effects on possibility generation – both a widening of possibilities (approach behaviours) and a narrowing (avoidance behaviours) determining an approach that either leads to self-protective pessimism in the case of possibility reduction or an agentic optimism in the case of possibility expansion. The protective mechanism which leads to a narrow attentional focus

For Kushnir (2023) human agents act because they believe the actions serve a purpose — usually of advancing toward some possible goal. She addresses the development of possibility beliefs through two separate pathways – naïve optimism to calibrated realism and naïve pessimism to creative transcendence. The first pathway is marked by the development of realistic calibrations of possibility linked to action. The second comes into play when children theorise in a counterfactual way about things which can happen and generate narratives of possibility. Crucially, Kushnir writes that the establishment of what is possible is not only developmentally influenced by action but also by modelling from an adult. Specifically, children learn from observing adults that the socio-cultural environment (initially represented by the caregiver) creates the set of available possibilities. Indeed, she writes that understanding of what is possible is shaped by permissibility which is in turn shaped by cultural understanding.

Ross (2023b) is even more explicit in her embrace of the environment. Coming from the perspective of distributed cognition, she suggests that breakthrough thinking is not simply a matter of internal cogitations of existing representations and a linear progression from ignorance to knowing but instead comes from the disruption of this rational approach by external intrusions or accidents. Her approach favors a model of creative cognition in which aching ignorance (Arfini, 2023) and the feeling of impasse are essential to orient the agent outwards having exhausted all internal resources. This requires a comfort with discomfort and uncertainty. The most parsimonious explanation of creative cognition and possibility generation is that it draws from something that is unknown to the agent (see also Hanchett Hanson, 2023). Alongside, future thinking being a preparation for action, the space of possibilities is determined by prior action and experience as both Copeland and Kushnir also make clear.

Uncertainty is key to understanding engagement with the possible. To draw from List – possibilities are erased when matters are settled, in contrast, possibilities depend on matters being unsettled. Baumeister writes about the different forms of uncertainty that mark engagement with the possible – subjective uncertainty relates to the epistemic state of the agent while objective uncertainty relates to the state of matter. Both require the generation of different possibilities. The role of uncertainty and the importance of educating for failure underlie Beghetto's (2023) call for educators to move away from an educational model based on backwards designing from hypothesised outcomes. For Beghetto, the complexity of living in the determined present and preparing for the undetermined future leads to a paradox for educators. Education rests on an unwritten social contract – that what is learnt in the present will be useful for the future. Yet how can this be fulfilled when the future is

unknowable? The answer for Beghetto is to combine educating for a likely future with an approach which also embraces education for possible futures and engaging with the “known unknowns”. This method requires embracing uncertainty and failure as a way of preparing for

Copeland (2023), also coming from the study of education, is concerned with how ethics can be taught against this backdrop of uncertainty. It is not enough to have a fixed set of rules which can determine all cases, such an endpoint would be ill advised but, on the other hand, without such a framework, vocabulary and core understanding may be missing. What is required is a consensus that consensus may not be possible and being able to be content with this discomfort. As with Beghetto, she argues that anticipation of what is needed in advance of the event is likely to be unsatisfactory. Under the framework of an ethics of possibility, the focus becomes on doing ethics correctly rather than attaining an idealised ethical endpoint. This is a generative approach to ethics which is marked by a stance of humility and acceptance of unknowing. Like Kushnir and Glăveanu, this contribution is clear that possibilities are generated between people and that ethical behaviour is a relational responsibility.

Inherent and unavoidable uncertainty is key to understanding how we can have agency in a deterministic universe. List (2023) draws from work by Helen Steward to discuss the concept of agency incompatibilism which he suggests means that “either the world is indeterministic or there is no agency” – in other words, agency is reliant on the existence of possibilities and choice which a fully deterministic model removes. This is a serious problem – if the world were to unfold as expected no matter what interference from a human agent then certain moral systems would collapse. To deal with this, List considers and critiques several assumptions. First, humans do not have agency as we currently understand it. Second, agency does not require multiple possibilities, third that the universe is not deterministic. List proposes a new view on agency that places it at a higher level of understanding to physical determinism. He argues that it is essential that this agential possibility exists for us to understand human behaviour.

The importance of action and experience means that each of the papers has something to say about the way that human agents interact in an everyday way. The most explicit mix of theoretical and practical applications is the contribution by Glăveanu (2023) in which he draws on a detailed understanding of the theoretical background to Possibility Studies to provide an example of how it may be translated to applied activities. The activities aim to generate Possibility Spaces that guide people into the relational space of uncertainty to generate answers to some of the more complex problems that society faces. As we have seen above, possibility theorising is necessarily embedded in real world activity because this real world both generates and constrains possibilities as well as providing the space for future action. Glăveanu builds on this to introduce his PROMPT (Positioning-Repositioning-Original repositioning-Making-Possibilities Transformed) model of possibility play, pushing at the boundaries of the interactions among people, place, and possibility,

The new science of possibility has much to determine as it gains a foothold. Transdisciplinary and interdisciplinary work is hard and uncomfortable (Harris, 2023). It requires scholars to engage with ideas which overlap but are often framed by disciplinary allegiances. In common with the contributors to this issue, we do not wish to close the discussion or provide a framework for the new science other than pointing to the importance of relational frameworks, optimism and pessimism, uncertainty, creativity and agency. We are excited to see where the field develops.

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