Research Statement

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Normative decision theory aims to provide a formal account of practical rationality. This is the sort of rationality exhibited by agents who perform well in practical tasks, in light of their goals and beliefs. Given our status as planning creatures, many of the practical tasks we face are dynamic in nature, involving anticipated sequences of decisions and learning events. My research examines what practical rationality requires of agents facing such extended choice problems and explores the significance of dynamic choice norms for various debates in decision theory, epistemology, and ethics.

A. Decision Theory

My dissertation lays the groundwork for this research program by motivating and defending optimality and dynamic consistency norms in contexts of sequential choice. These norms state (roughly) that rational agents facing sequential choice problems should, in ideal conditions, judge only optimal plans as admissible to implement and that such evaluations should be impervious to alteration by re-evaluation at subsequent stages of the problem. The rest of my work explores the theoretical fecundity of these principles.

Preceding debates regarding dynamic choice principles have been undertaken almost exclusively in the context of the variants of Bayesian decision theory most familiar to economists, e.g. the theories of Savage and von Neumann and Morgenstern. However, philosophers have long recognized the greater elegance and generality of the approach pioneered by Richard Jeffrey, and so a key focus of my research has been to explore the significance of dynamic choice arguments in the context of Jeffrey-style Bayesianism. In my paper, "Dynamic Consistency in the Logic of Decision" (*Philosophical Studies*), I begin this project by suggesting how to identify plans with propositions in Jeffrey's model via conditional operators and how to assess the dynamic consistency of agents within this framework. In doing so, I uncover potential dynamic inconsistencies on the part of Jeffrey agents. This motivates subsequent work undertaken with Simon Huttegger in which we explore the implications of alternative construals of the planning conditional for the dynamic consistency of Jeffrey's theory ["Bradley Conditionals and Dynamic Choice" (*Synthese*)].

Equally central to my work has been the import of dynamic choice norms in the context of the main rival to Jeffrey's theory, *Causal Decision Theory* (CDT), which has come under fire from decision theorists recently for leading to awkward results in dynamic choice problems. In my paper, "A Plan-Based Causal Decision Theory" (*Analysis*), I attempt to counter this trend by proposing a novel formulation of CDT that evades some (though not all) of the dynamic inconsistencies that afflict standard versions of the theory. My fullest treatment of dynamic consistency norms in this context, in my manuscript, "Newcombian Tragedy" (draft available on my website), yields an impossibility result: no decision theory that satisfies two plausible constraints can be dynamically consistent across the full range of standard dynamic choice problems.

One of my principal research aspirations going forward is to extend my investigations of rational choice and planning beyond the confines of Bayesianism. A number of recently proposed alternative approaches to conceptualizing rational choice merit deeper investigation in this context. For example, the *reason-based decision theory* of Dietrich and List attempts to bridge the gap between decision theory and mainstream philosophical accounts of practical rationality (e.g. as found in ethics and action theory) but has yet to be applied rigorously to planning problems. The *case-based decision theory* of Gilboa and Schmeidler is another fascinating alternative to Bayesianism that invites far deeper consideration from philosophers than it has so far received, both in static and dynamic choice contexts. Investigating these theories as models of rational planning would allow us to better assess their prospects as genuine rivals to Bayesianism.

B. Epistemology

Dynamic choice arguments have also been thought to carry significance for epistemology. It is well known that various norms on credence have been supported via dynamic consistency arguments, e.g. van Fraassen's Reflection norm or the principle of updating by Bayes' Rule. I am interested in further constraints that dynamic consistency may impose upon a rational agent's beliefs. In my manuscript, "Newcombian Tragedy", I argue that dynamic consistency, paired with causal decision theory, may support a surprising norm on credence that I dub *Autonomy*. According to this norm, a rational deliberating agent takes the evidential import of her choices to coincide with their causal import at the time of choice, thus eliminating any discrepancy between the recommendations of causal and evidential decision theory. This effectively amounts to requiring rational agents to view themselves as possessing a robust sort of free will.

C. Ethics

Finally, I aim to take up a project applying principles of dynamic choice to debates in ethics and welfare economics. Formal approaches to ethics have made extensive use of the mathematical framework of standard decision theory and game theory in dealing with questions regarding welfare aggregation, fairness, and the correct principles of social choice. Intriguing work by Peter Hammond has purported to show that plausible principles of dynamic social choice provide support for broadly utilitarian answers to the central questions of social ethics, complementing the arguments set forth by Harsanyi in the course of his famous disagreements with Rawls and Sen. Skeptical of the success of these arguments, I hope to investigate more thoroughly and critically the ethical import of the principles of dynamic choice defended in my research thus far, with an eye also toward their practical relevance for a number of crucial ethical and public policy debates that lie at the intersection of value theory and philosophy of science (e.g. those regarding topics like climate change and the ethics of artificial intelligence).