Philippe Mongin (1950-2020)

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On August 5, 2020, the worlds of economics and philosophy lost an exceptional figure. Philippe Mongin passed away after a long illness. Mongin was widely known and esteemed for his contributions to decision theory, game theory, social choice theory, welfare economics, and the history and philosophy of economics. He will be fondly remembered not only for his wide-ranging scholarship, but also for his endearing and distinctive personality, which pervades his writings.

We will start by describing Mongin's particularly rich intellectual background, rooted in his broad education. In effect, Mongin was educated not in one but three disciplines. His first education was in philosophy, at the *Ecole normale supérieure* (ENS; 1969-1974). There, he acquired solid argumentative skills, developed a discerning eye for the history of ideas, and mastered the art, in which he excelled, of writing not just unambiguously, but with precision and elegance. Mongin's second education was in economics, first at the *Institut d'études politiques* (Sciences Po; 1971) and later during an extended stay he made at the University of Cambridge (1975-1978). This is where he acquired, successively, his knowledge of classical political economy and a taste for economic theory that was to increase over time. Mongin wrote his first PhD under the supervision of Raymond Aron (at the *Ecole des hautes études en sciences sociales*, or EHESS; 1978), at the intersection of classical economics and traditional philosophy, on Marx's preparatory manuscripts to *The Capital*. His second PhD or *thèse d'Etat*, prepared under the supervision of Bertrand Munier (at *Université d'Aix-Marseille-III*; 1984), was an inquiry into the epistemology of contemporary economics, especially focused on its rationality assumptions. Mongin's third education was in mathematics, with a BSc (1984) he completed while already an early career researcher at the *Centre national de la recherche scientifique* (CNRS). This additional mathematical training was comprehensive, including mathematic logic, which would figure importantly at several stages of his later work. Such a multifaceted education explains not only Mongin's impressively polymath research profile—for only one example, witness, at the intersection of economics, history, philosophy, and even literature, his last stream of research on so-called analytic narratives (i.e., historical explanations in which the traditional narrative approach of historians is further disciplined by the use of the analytical tools of decision and game theory; see Mongin, 2008b, 2012d, 2018a). It also explains the fact that he was, in doing or thinking about economics, so distinctively sensitive to different kinds of rigor, depending on whether mathematics, history, or philosophy were predominantly at stake.

Mathematical logic played an important role in at least two branches of Mongin's early research. First, Mongin became interested in the nonmonotonic logic of *belief change* developed by Alchourrón, Gärdenfors, and Makinson (AGM). Departing from the paradigms of classical logic, AGM were motivated by the question: How should a reasoner revise

her binary beliefs if she receives new information that is *inconsistent* with these beliefs, implying that at least some of them are *false*? Meanwhile, philosophers of probability and decision theorists had developed various theories of *non-additive probability*, such as Dempster-Shafer belief functions. In two innovative papers, Mongin (1994c, 1994d) established surprising connections between AGM logic and non-additive probabilities.

Around the same time, Mongin began a fruitful collaboration with Luc Lismont on epistemic and doxastic logics. *Epistemic logics* are species of modal logic where the modal operators encode statements such as "Agent i knows that proposition Φ is true." In the closely related *doxastic logics*, modalities encode statements such as "Agent i believes Φ." Mongin and Lismont sought to develop variants of epistemic and doxastic logics capable of describing *common knowledge* and *common belief*, two concepts that play a crucial role in the foundations of game theory. In a series of papers, Lismont and Mongin (1991, 1994a, 1994b, 1995, 2003) introduced axioms for modal logics of common knowledge and common belief, established their basic properties (e.g., soundness and completeness), and provided them with semantics. Finally, in another important and particularly influential application of doxastic logic to game theory, Heifetz and Mongin (2001) introduced a logic of *probabilistic belief modalities* (encoding statements of the form "agent i assigns probability at least p to proposition Φ"), and used them to formalize the type spaces of Bayesian games.

To the readers of this journal, Mongin was probably best known for his work on social choice theory. His earliest and most prominent contributions were on the topic of *Bayesian social aggregation*. The literature on this topic begun with two famous papers published by Harsanyi (1953, 1955) who, working in the von Neumann-Morgenstern (vNM) expected utility framework, claimed to have derived a compelling justification for utilitarian moral philosophy from seemingly uncontroversial premises (e.g., the *ex ante* Pareto axiom). Over time, these results came to be known as Harsanyi's *Impartial Observer Theorem* and his *Social Aggregation Theorem*. Philosophers and normative economists such as Amartya Sen identified various flaws in Harsanyi's arguments in the ensuing decades (see Weymark, 1991 for a summary of and a landmark contribution to this debate). Specifically, for any single "profile" of individual and social vNM utility functions, Harsanyi had shown that the social utility must be a weighted sum of the individual ones. But different utility profiles

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might involve *different* weights, which is a departure from utilitarianism as conceived by Bentham and followers. Furthermore, as Sen also noted, an agent's vNM utility describes her attitudes towards *risk*, not necessarily her welfare in the absence of risk—another departure from utilitarianism *à la* Bentham.

In the 1990s, Mongin resolved some of these problems. First, he obtained new "multi-profile" versions of Harsanyi's Social Aggregation Theorem (Coulhon and Mongin, 1989; Mongin, 1994a; d'Aspremont and Mongin, 2008), with weights that were invariant across all profiles. *Contra* Sen, these papers also clarified that Harsanyi's aggregation theorem could be given genuine utilitarian content, in terms of *riskless* notions of welfare—a point that Fleurbaey and Mongin (2016) made more forcefully in a later publication. Meanwhile, Mongin (2001) critically examined and fortified the philosophical foundations of Harsanyi's Impartial Observer Theorem.

However, Mongin's most celebrated result in Bayesian social aggregation is undoubtedly his *impossibility theorem* (Mongin, 1995). As already noted, Harsanyi worked in the vNM framework—where risks are described by objective probabilities—and his Social Aggregation Theorem relied on an *ex ante* version of the Pareto axiom. Mongin showed that Harsanyi's reasoning *could not* be extended to the Savage framework, in which each agent maximizes expected utility with respect to her own *subjective* probabilities. More precisely, he showed that—barring dictatorship—the *ex ante* Pareto axiom was essentially incompatible with heterogeneity of beliefs. This not only challenged, indirectly, the normative relevance of Harsanyi's theorem itself; it also called into question, more generally, the ubiquitous use of Pareto in the *ex ante* welfare analysis of economic institutions (e.g., financial markets). Mongin traced the source of the problem to *spurious unanimity* (a now famous phrase which he coined; see Mongin, 2016 [1997]: two agents can apparently agree that one course of action is better than another, but for different and contradictory reasons. In further papers, he extended the reach of his impossibility theorem, but also suggested possible escape routes (Mongin, 1998; Mongin and Pivato, 2015, 2020). This work was informed by and informed his parallel investigations of decision theory under uncertainty (Karni and Mongin, 2000; Mongin, 2020).

Beyond utilitarianism, Mongin was interested in distributive justice and social welfare evaluation more broadly, and wrote several important papers and surveys on this topic

(Mongin and d'Aspremont, 1998; Jaffray and Mongin, 2003; Fleurbaey and Mongin, 2005), as well as on other topics in social choice theory (Maniquet and Mongin, 2015, 2016). His earlier interest in mathematical logic was to find a new application in his contributions to *judgement aggregation* (which he also called *logical aggregation*). Consider a panel of judges examining a legal syllogism. Kornhauser and Sager (1986) had noted that each premise of the syllogism could be endorsed by some majority of the judges, while the conclusion is *rejected* by a majority, thereby yielding a "majority opinion" that is inconsistent. Two decades later, List and Pettit (2002) proved an Arrow-like impossibility theorem, stating that similar inconsistencies would afflict *any* "reasonable" way of aggregating opinions about a set of logically interconnected propositions. This triggered an explosion of research activity at the start of the new millennium. Mongin was part of the first wave of researchers to take up the gauntlet thrown down by List and Pettit. His earliest contribution found more general conditions for existing impossibility theorems (Mongin, 2008a), while a later paper identified necessary and sufficient conditions for the "premise-based" approach to circumvent them (Dietrich and Mongin, 2010). Mongin also wrote three lucid survey articles on this topic (Mongin and Dietrich, 2010; Mongin, 2012a, 2018b), as well as two side articles concerning its forgotten origins and its future prospects (Mongin, 2012c, 2019a). A paper by Maniquet and Mongin (2016) on the aggregation of classifications also drew inspiration from ideas of judgement aggregation.

Visible in all of this work is Mongin's interest not only in the formal mathematical analysis of economic problems, but also in the underlying philosophical issues at stake. In an epoch when many economists either tacitly ignored or explicitly evaded such issues, Mongin's sensitivity towards them was evidenced not only by his choice of research questions, but also his rigorous analysis and meticulously precise use of non-formal language. This can be seen especially clearly in survey articles such as Mongin and Fleurbaey (1996), Mongin and d'Aspremont (1998), and Mongin and Pivato (2016).

Setting social choice theory and the foundations of welfare economics aside, Mongin's contributions to the philosophy of economics escape traditional classifications. Granted, parts of his work pertain to standard topics in the philosophy of economics of the 1980s and 1990s—which was heavily influenced by the general philosophy of science—or to the larger methodology of economics tradition—in which the history of economic ideas always played

a central role. Here one may refer to Mongin's work on instrumentalism, realism, and testability in economics (Mongin, 1984b, 1986a, 1986b, 1987, 1988a, 1990, 1992, 1997), the nature of explanation (Mongin, 2002b, 2012b), revealed preference and operationalizability (Mongin, 2000b, Karni and Mongin, 2000, Baccelli and Mongin, 2016), or even some of his work on the norms of individual rationality (Mongin, 1984b, 1984a, 1986c, 1994b, 2000a). Special mention is due to his uniquely comprehensive technical, historical, and philosophical investigation of the Allais paradox (see Mongin, 1988b, 2009a, 2014, and especially 2019b), which earned him the *Prix Maurice Allais de science économique* (2019).

However, many of Mongin's most distinctive contributions deal with topics that are far from standard in the philosophy or methodology of economics literature. Indeed, he wrote about the analytic vs. the synthetic (Mongin, 2006b) and the *a priori* vs. the *a posteriori* (Mongin, 2007) in economics, thus sketching an ambitious account of the epistemological status of economic theory; critically reflected on the customary divide between positive and normative economics (Mongin, 1999, 2006c, 2018c); discussed whether one could speak of progress in normative economics (Mongin, 2002a, 2006a); analyzed the axiomatic methods that economists use (Mongin, 2003); and examined how their discipline contrasts with the other social sciences in its handling of rationality assumptions (Mongin, 2002c). These original and challenging topics illustrate not only the lasting influence of Mongin's initial formation in traditional philosophy. Even more tellingly—and as an examination of his contributions on more familiar topics also reveals—they demonstrate that his philosophy of economics grew organically from his economics, as a constant learned reflection on his and his colleagues' practice. Truly, he was neither a philosopher working on economics, nor an economist with interests in philosophy; he was a philosopher-economist. For his œuvre as a whole, he was awarded the *Prix Grammaticakis-Neumann de l'Académie des sciences morales et politiques* (2019) and the *Prix de la Revue économique* (2020).

Mongin spent his entire career at the CNRS, which he joined in 1978 and from which he retired, emeritus, in 2015, as *Directeur de recherche de classe exceptionnelle.* Over the years, he taught various topics at the intersection of economics and philosophy at Sciences Po, the ENS, the *Ecole supérieure des sciences économiques et commerciales* (ESSEC), the *Université de Cergy-Pontoise*, the *Ecole polytechnique* (X), and the *Ecole des hautes études commerciales* (HEC). An internationally recognized figure, he was also an invited

professor in nearly twenty leading research institutions. His most extensive stay took place during the late 1980s and early 1990s at the *Université catholique de Louvain*, where he met his wife, the renowned game theorist Françoise Forges. Mongin served as a Coordinating Editor (1988-1994) and later a Consulting Editor (1994-2020) for the present journal. He was also, most notably, an Editor for *Economics & Philosophy* from 1994 to 2000. Over the years, he also served in various capacities on the boards of the *Revue économique*, the *Journal of Economic Methodology*, the *Revue de philosophie économique*, and *Social Science Information.* In addition to his editorial work, Mongin served for several years (2006-2012) as a member of the *Conseil d'analyse économique* (CAE), which advises the French Prime Minister on economic affairs. There, he contributed in various roles to noted policy papers on topics ranging from universal minimum income (*revenu de solidarité active*) to Thaler and Sunstein's "libertarian paternalist" theory of nudges, to catastrophic risks. (He also explored the first two of these topics in his own academic research; see Mongin, 2008c, 2009b and Mongin and Cozic, 2018, respectively.) The brother of two high-profile civil servants, Mongin had a keen sense of public service, and he would never fail to connect the dots between economic theory, or even the philosophy of economics, and actual policy-making. A recognition of his service that extended beyond academia, he was named a *Chevalier* of the *Ordre national du mérite* (1995) and of the *Ordre national de la Légion d'honneur* (2004).

Mongin moved between philosophical, economic, and mathematical idioms as easily as he switched between French, English, and German. He employed all of these languages with the same exactitude—and the same relish. He was known not only for his expansive scholarship but also his personal style, which combined a rare cultivation (not only in intellectual matters, for he was a noted art connoisseur) and patrician courtesy with warmth, openness of spirit, and an almost boyish enthusiasm for new ideas. He could also be extremely generous with his time, encouragement, and support. As someone who himself had made the difficult and dangerous passage from one academic discipline to another, and who walked confidently the borderlands between economics and philosophy, he was unstinting in his support and mentorship of younger researchers who sought to do the same. His inspiration and influence are manifest in the research of his many *protégés*, starting with his first and most famous, Marc Fleurbaey.

Finally, Mongin was also, in our experience, a demanding but incredibly rewarding co-author. He was at times disarmingly intuitive when introducing or exploring new ideas, but also unrelentingly detail-oriented when assessing their true value or—an aspect he was distinctively sensitive to—how they should be explicated. The range and variety of his collaborations bears testament to his curiosity and versatility, as well as his personal fidelity. His sincere modesty and unsparing irony, together with his admirable research achievements, formidable erudition, and penetrating *esprit de finesse*, made for an inimitable personality which several communities will sorely miss.

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