

Synthese special issue: representing philosophy

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The disciplinary output of philosophers has exceeded the comprehension of any single individual for a couple of hundred years now. Today even the largest philosophy departments cannot claim to cover the entire discipline. The traditional solution to the problem of attaining an overview of the profession as a whole, of “representing philosophy,” has been to print encyclopedias, dictionaries, handbooks, and indexes of philosophy. Encyclopedias promised the most comprehensive coverage, and for Anglophone readers, the publication of Macmillan’s *The Encyclopedia of Philosophy* in 1967 was a landmark effort in that direction. It took another thirty years for other encyclopedias of philosophy to be produced that attempted to cover even more unmanageable amounts of published literature. By this time, futurists inspired by the amazing growth of the World Wide Web (WWW) were already predicting the demise of the traditional book and its replacement by on-line publication in ever-increasing volumes. Whatever happens to traditional books, it is clear that digital technologies have changed the terrain in which all academic disciplines operate.

The development of computers and philosophy have been intertwined from the beginning of computing, and philosophical ideas—such as the application of logic and formal ontology (in a sense that is now fully co-opted by computer scientists) to the organization of information—continue to be a driving force in the development of the WWW. Philosophers have also spearheaded numerous digital projects, and by the mid 1990s they were among the first humanities scholars to recognize the potential of the WWW for organizing their discipline. The advent of the Web has clearly

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reinvigorated the motivation of philosophers to build authoritative overviews of their entire discipline, and it has provided the tools to reinvent the encyclopedia as a dynamic reference work, capable of responding to new ideas and scholarship much more quickly than a traditional print encyclopedia ever could. The Stanford Encyclopedia of Philosophy is an archetype, predating the Wikipedia and its cousin, the peer-reviewed Nupedia by half a decade. But new digital methods also make it possible to go beyond encyclopedias to other forms of representation of philosophical content, and several such projects are nascent.

This special issue of *Synthese* discusses the conceptual, ontological, technological, ethical, political, and professional dimensions of attempts to represent the entire discipline of philosophy. One of our goals with this issue was to collect in one place several of the leading projects in digital philosophy so that the profession can begin to discern and debate what might be the best practices for the representation of philosophy in the 21st century. The papers herein describe and reflect upon the promise and perils of attempts to represent the discipline, ranging from encyclopedias to formal data structures (e.g., formal ontologies and new forms of logic), search engines, and graphical methods for visualizing relationships among philosophical ideas and philosophers. Attempts to codify the discipline raise questions about the boundaries of philosophy, the legitimacy of specifying a canonical set of topics, texts, authors, and the possibility of capturing adequately the relationships among them. All representations of the discipline necessarily emphasize some ideas over others, even to the point of excluding some of them entirely. All philosophers should therefore be worried about the effects that prominent representations of the field might have on the shape of philosophy itself, especially since students and scholars may tend to favor the pursuit of questions and topics that are featured in the most visible or accessible resources. Some forms of representation also risk turning the rich dynamics of the discipline into something all too static. Furthermore, many philosophers are skeptical about the potential of digital methods for extracting meaningful representations of the discipline from the voluminous output of professional philosophers.

These challenges and questions are addressed in a variety of ways by the papers in this special issue. The first three papers explore the use of “ontologies” with slightly different understandings of that term. Pierre Grenon and Barry Smith describe PhilO, a formal ontology of philosophy, which they describe as “a theory of the kinds of entities found in the philosophical domain and of their interrelations”. Their ontology is designed to be maximally useful for formal, machine reasoning and for compatibility with formal ontologies of other domains besides philosophy. Because of the care required to define terms explicitly and to axiomatize their relations, they envisage an “arduous long-term endeavor” by experts to build and maintain the ontology. In contrast, in their contribution to this issue, Cameron Buckner, Mathias Niepert, and Colin Allen describe the Indiana Philosophy Ontology (InPhO) project, which uses automatic methods and a small amount of expert feedback to create what they call “a dynamic computational ontology” for the discipline of philosophy. In accepting looser requirements than are placed on formal ontology, Buckner et al. aim to produce tools that can be highly automated but have significant utility for specific projects in digital philosophy – especially, but not limited to, the Stanford Encyclopedia of Philosophy. A third application of computational ontology to the representation of

philosophy is described in the paper by Michele Pasin and Enrico Motta, who introduce their PhiloSurgical project. The goals of Pasin and Motta are explicitly pedagogical, seeking to provide a framework in which students may explore a key philosophical text (Wittgenstein's *Tractatus* is their example) through a formal ontology which aims to capture the expert knowledge of a specific teacher. The different aims and methods of these three projects lead to different ways of organizing philosophical material into types of objects. Undoubtedly these papers are capable of seeding a debate about the appropriateness of these and other ways of organizing philosophical representations for the various purposes in which they are intended to be deployed.

The fourth paper in this issue is by Christopher Menzel, who takes a broader look at developments in logic for the WWW. First-order logic has long been taken as the best tool in the philosopher's toolbox for representing philosophical ideas and arguments. Yet, as Menzel points out, first-order logic reflects certain metaphysical assumptions from its Fregean heritage and is thus not a philosophically neutral tool. Interestingly, there have been parallel developments among philosophers seeking a more flexible representational tool for philosophy and among computer scientists who need to deal with the fact that the same information can appear in multiple formats on the WWW. Menzel, who has been among the leading developers of "Common Logic" for the Web, describes the evolution of logic on the WWW and tracks its relationship to the underlying semantical and metaphysical issues in philosophy.

The last two papers in this issue describe attempts to represent philosophy as it is practiced. David Morrow and Chris Sula, originators of the Philosophy Project, argue for a "naturalized metaphilosophy" – the data-driven investigation of the social interactions among philosophers and the spread of their ideas. They describe sources of data and ways of visualizing the networks in which philosophers participate, and they argue that their naturalized approach to the social aspects of philosophy is complementary to, not a replacement for, the argument-driven analyses which underlie most philosophers' self-conception of their activity. The final paper in the issue is by Anthony Beavers, who describes the third iteration of his Noesis search engine for philosophy, current plans for its development, and the practical utility of enhancing its search capabilities with new affordances provided by machine-readable ontologies of the discipline. Beavers argues that Noesis fills a gap between general purpose search engines, such as Google, and site-specific ones, such as the Stanford Encyclopedia's internal search engine. As a consequence, Noesis seems well positioned to supply philosophers with comprehensive access to all aspects of philosophy, tying together everything from departmental and individual faculty websites, to online journals, professional associations and encyclopedias. Beavers argues that Noesis will make it possible to gather evidence to test claims about the discipline as a whole, potentially reducing our dependence on the necessarily idiosyncratic views of self-appointed gatekeepers.

In sum, this special issue of *Synthese* demonstrates that philosophers are creatively using the computational tools and digital resources to manage, provide access to, and learn from the ever-increasing amount of activities and texts produced by the profession. In doing so, they are finding new ways to represent philosophy. We hope that these contributions will stimulate, challenge, and inspire other philosophers to build even better tools for furthering our own self-understanding.