

Metascience and the Bunge Alternative

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The Bungean Solution

More than any other philosopher, Mario Bunge is unclassifiable. In 1982 John Wettersten wrote about the discomfort and frustration that one might feel when reading Bunge's work. He was trying to understand why his work was not seen as an alternative to the work of other philosophers¹.

Wettersten's answer relates to the problem of knowledge acquisition. If knowledge is contextual, relative to a frame of thought, how can we then rationally evaluate this frame of thought itself? Wettersten identifies two tendencies: either one maintains that frames of thought are chosen arbitrarily, which leads to relativism, or one maintains that there is only one immutable frame of thought, which leads to dogmatism.

Like many thinkers, Bunge tries to avoid relativism and dogmatism. But Bunge's proposed solution would cause this unease that Wettersten reports. Bunge's solution is to take for granted a set of general assumptions associated with science. By adopting a framework similar to that of science, it is then possible to make rigorous analyses and synthesizes within this framework, but still sensitive to the change that this general framework undergoes under the influence of scientific research. But is this frame of thought not chosen arbitrarily? It is not chosen arbitrarily, but it cannot be justified in a "strong", logical, philosophical, metaphysical or other way, which would lead us to dogmatism. It only takes a thought experiment, a reflection, to convince oneself that objects of knowledge are concrete objects that provoke our sensations and our perception. If we continue our reflection, we will see that these objects have their own qualities, what thinkers have called primary qualities, and

¹ Wettersten, « The Place of Mario Bunge », 1982.

that we wrongly attribute certain qualities that they do not have, called secondary qualities. Once this general premise has been admitted, it is easy to recognize that science provides us with a fairly accurate, although imperfect, account as to the nature of these concrete objects. In fact, the very success of science becomes part of our thinking. There is a back and forth between our reflections on the subject and this observation of the success of science. This success reinforces the idea that we are in concrete interaction with objects from the "outside world" and that it is these objects that are objects of knowledge. It is therefore rational to adopt the general postulates on which science is based, to adopt Bunge's solution to the problem of knowledge acquisition, and thus avoid the pitfalls, mentioned by Wettersten, which are dogmatism and relativism, in order to build a general scientific discourse, a metascience.

Why metascience? Why a new discipline? The general assumptions on which science is based are not philosophical, despite the fact that it is common to say otherwise. They are not philosophical because they come from a pre-methodical reflection. There is no method, be it philosophical, scientific or metascientific, that allows us to establish them. The thought experiment that distinguishes primary qualities from secondary qualities requires no advanced training in philosophy or science. Just use our ability to think. Furthermore, the philosophical doctrines themselves are based on a set of pre-methodical postulates. It is only once these postulates have been established that one can set in motion a particular philosophical method specific to each doctrine. Thus, thinking about primary qualities and secondary qualities is part of the more general problem of distinguishing between appearance and reality. What is an appearance? What is reality? As several thinkers have pointed out, the division of philosophy into doctrines comes in large part from the answers proposed to these questions. But answers advanced by each doctrine do not come from a philosophical method. Before even starting research, you must have at least a basic idea of the object of knowledge. In other words, you have to get an idea of the nature of appearances and reality before proposing an approach and methods to account for it. The existence of pre-methodical, non-philosophical and non-scientific postulates justifies a metascience insofar as it relies on the same general postulates as science. These postulates are not problematized even if they can be criticized and adjusted according to the advancement of science. This is what we

defend in our contribution "Metascience: for a general scientific discourse" in this first issue of *Metascience* entitled *Mario Bunge, Thinker of Materiality*.

Why materiality? Why not materialism? Philosophical doctrines are normally referred to by words ending with suffixes -ism or -logy. Bunge also uses an impressive number of -isms to qualify his thinking. We argue that Bunge's positions are not philosophical, but rather the result of a pre-methodical reflection, and the fact that they are not problematized, but rather taken for granted, takes him away from philosophy. Thus, simultaneously supporting general postulates similar to those of science evacuates philosophical discourse and brings Bunge's way of reasoning closer to the way scientists reason. Bunge adopts a scientific posture, not a philosophical one. Now, if the research program we are proposing is based on the same postulates as science, and if every metasciences share the same objects, problems and methods, it would no longer be necessary to use any -isms since metasciences will then form a unified disciplinary field in the same way as factual and formal sciences form unified disciplinary fields. "Isms" are necessary where doctrines exist, and doctrines proliferate where there are no common objects, problems and methods. Factual and formal sciences use very few expressions in -ism to designate doctrines. If scientists were to focus on defining doctrines whenever they did not immediately agree on a solution to a problem, they would indeed produce a large amount of -isms. However, they prefer to examine solutions already available, propose new solutions and test those solutions. This is only possible because they share a common approach, because they agree on the objects and problems to be studied and on methods to be used, even if it is still possible to re-evaluate objects, problems and methods. Thus, metasciences should produce very few -isms, starting with materialism. It is useless to maintain a "materialism" in order to oppose it to an "idealism", an "immaterialism" or a "spiritualism". Matter is the object of direct study of science and indirectly that of metascience. Bunge constructs a general scientific discourse, metascientific theories, based on the general postulates of science, including that of taking for granted the existence of a unique and concrete world. Science provides the results needed to study matter in general. There cannot therefore be several materialisms since our general conception of matter comes from a single source, science, which is interested in physical, chemical, living and

thinking matter. Hence the interest in physical, chemical, biological, psychological and sociological materiality, and not in materialism.

We are aware that there are many thinkers who implicitly or explicitly adopt a scientific attitude and, therefore, that they support a set of assumptions similar to those Bunge adopts and which is generally attributed to science. This is the first objective that the Society for the Progress of Metasciences must set itself, that of reaching all these thinkers, scientists or philosophers, who are already adopting the Bunge alternative.

The Role of Sopromet and *Metascience*

Why the epsilon in *Metascience*? It was important to stand out from the journal *Metascience*, published by Springer, in association with the Australasian Association for the History, Philosophy and Social Studies of Science (AAHPSSS). It had to stand out not only for the name, but above all because the purpose, scope and intended audience of the two journals are entirely different. *Metascience* specializes in book reviews, hence its subtitle, *An International Review Journal for the History, Philosophy and Social Studies of Science*. It covers all fields or disciplines which are interested in science, as its subtitle clearly indicates, whether it be philosophy, sociology or the history of science. The journal claims to be non-specialized because it is intended to be accessible to all researchers in these fields or disciplines.

As for *Metascience*, it specializes in the conceptual study of science with a view to producing a *scientific general discourse*, this expression then serving as a subtitle for the journal. It is a specialized journal, in the sense that it proposes to found a new discipline, metascience, and that it is addressed to all those interested in the nature of scientific products—concepts, propositions, theories—outside their social context, in the same way that one can be interested in a literary or artistic work for itself. The study of science, however, cannot be reduced to a logical analysis of it; logic is only a tool for the scientist and the metascientist and not an approach or a method. The nature of scientific production can only be grasped if there is a metascientific theorization, that is to say the elaboration of ontological, semantic, epistemological and methodological theories, theories whose starting point is intended to be identical to that

of science: a set of general postulates in the world and on knowledge of it. We owe this approach to the study of science to Mario Bunge.

What tools and resources are available to us to continue Mario Bunge's research program? To our knowledge, there is none. We have therefore created the **Society for the Progress of Metasciences** (Sopromet), a non-profit association dedicated to the promotion of the *conceptual sciences* or *metascience* in order to produce a *scientific general discourse*. Founded in 2018, Sopromet is a non-institutional initiative that receives no subsidy. Here are some of the goals that Sopromet has set for fulfilling its mission:

1. Supporting a meta-scientific research program
2. Building a community of metascientists
3. Promoting the professionalization of metascientific research
4. Promoting the creation of departments of metasciences
5. Organizing an annual congress
6. Creating a metascientific lexicon
7. Dissemination of metascientific research to a wide audience
8. Demystifying philosophy
9. Distinguishing the metascientific approach from the philosophical approach

Metascience will act as a catalyst and hopefully help achieve Sopromet's goals. The journal claims Bunge's work. The claim is not for the purpose of exegesis, but rather with the aim of continuing the research program developed by the author of the *Treatise on Basic Philosophy*². The *Treatise* is the culmination of some twenty-five years of research and reflection on the nature of science, but also on the nature of philosophical research. The *Treatise* had and still exerts a great influence on several thinkers. In 1990, he was the subject of a collective study, *Studies on Mario Bunge's Treatise*, under the direction of Paul Weingartner and Georg J.W. Dorn. This study involved thinkers from various backgrounds, philosophers, but also scientists. It would be futile to seek to associate the *Treatise*, or Bunge's work, with a philosophical current. Bunge's thought was associated with analytic philosophy or logical empiricism, but even a cursory reading of Bunge's work makes us see the gap between Bunge's approach and that of these philosophical doctrines.

² Bunge, *Treatise on Basic Philosophy*, 1974-1989.

We have already noticed that Bunge's scientific approach, adopting the general assumptions of science and not problematizing them, makes the *Treatise* unclassifiable within philosophy, that the *Treatise* alone is the foundation of a metascientific research program, the founding work of a new branch of scientific knowledge, metascience or the *conceptual sciences*, thus forming a scientific triad with the *factual sciences* and the *formal sciences*.

Without the assistance of **Éditions Matériologiques**, the journal would only be available in electronic format; the availability of a journal in paper format is also an asset for the dissemination of knowledge. The **EM** was ideally suited to participate in this project since they specialize in the publication of works of science and philosophy of science, and they have also published the translation of two works by Bunge, *Philosophy of Medicine* and *Between Two Worlds*.

Although the tools are lacking, Sopromet and *Metascience* did not emerge in a cultural vacuum. Over the centuries, several philosophers have contributed to metascience, just as many of them have contributed to science. We can add to the objectives that Sopromet has set to itself, that of identifying the metascientific contribution of these thinkers, a work already well advanced thanks to Mario Bunge. Closer to home, there are thinkers and projects close in spirit to that of Sopromet. We are thinking, among other things, of the series "Sciences & Philosophie" at Éditions Matériauxologiques, directed by Philippe Huneman, Guillaume Lecointre and Marc Silberstein, to Max Kistler's project, *Metascience of Science/Métaphysique des sciences*, that of Tuomas Tahko in Bristol, *MetaScience*, and an organized conference by Zongrong Li, *Developing Mario Bunge's Scientific Philosophical Program*, for 2021 (for more information, 2320129239@qq.com). We also think of thinkers such as Elliott Sober, in philosophy of biology, or Gustavo Romero, in philosophy of physics, whose research for us is more about metascience than philosophy. Without going into details—which we reserve for our article "Metascience: for a general scientific discourse"—a thinker is a metascientist if he does not postulate any principle foreign to matter, which is the subject of study of all sciences.

The first objective of *Metascience* is to attract authors who will make an original contribution to metascience, notably through the development of semantic, ontological, epistemological and

methodological theories, these disciplines being treated metascientifically rather than philosophically. That said, metascience is practiced in many ways, as is science. Although the development of very general theories is the ultimate in research, most scientists do not conceive of such theories and most metascientists will not conceive far-reaching ontology, semantics, epistemology and methodology. A contribution may be the development of a more restricted theory, such as a theory of factual truth that would be integrated into a general semantics. It can also be a work of clarifying a concept, by a characterization or definition, or a theory, which can then take the form of a bungean axiomatization (dual axiomatics), one of the most remarkable contributions of Mario Bunge³. We can also think of the work of validating metascientific theories, whether by confronting them with contemporary scientific theories in all fields or by case studies from the history of science. An important application of metascientific theories would be the ontological, semantic, epistemological and methodological analysis of academic pseudosciences, notably doctrines in the social sciences based on the rational choice “theory”, in order to pinpoint precisely the unscientific assumptions on which they are based. If there is validation, there is data collection. There is therefore work to excavate, to catalogue and to classify metascientific data. This metascientific knowledge must be taught and passed on to students, disseminated to a wide audience. One imagines then the writing of textbooks and popular works, in which an important place would be reserved to the notion reflection and various transempirical thought experiments. Finally, there is the application of this knowledge to many situations, wherever it is relevant to use a general science-based thought. As can be seen, metascientific research is diverse and of varying difficulty. There is something for all tastes and talents. And we just hovered over the subject!

This inaugural issue of *Metascience* is also a special issue since it is dedicated to paying homage to Mario Bunge. Originally, it was a question of taking advantage of the occasion of its 100 years to underline its contribution to knowledge, but also to mark the affiliation that we claim with its thought. The death of Mario Bunge in

³ The expression *dual axiomatics* appears in two texts by Bunge : « Why Axiomatize ? », 2016, and *Doing Science*, 2017, sect. 5.4. For examples of dual axiomatization, see *Foundations of Physics*, 1967.

early 2020, unfortunately, obliges us to pay him a posthumous tribute. We have therefore not imposed the editorial policy of *Metascience* on the contributors to this issue so that they can contribute to this tribute each in their own way. Nevertheless, many of the articles on this issue can be considered as metascientific contributions, or of metascientific inspiration, or as applications of the metascientific approach to various fields.

Next issues will therefore be *more and more* oriented towards the metascientific research program that we are proposing. The Bungean approach to general knowledge is the only one of its kind, at least in such an achieved form, so it is normal that there is some uncertainty as to the details of the research program, in particular the criteria for text evaluation. This is not specific to the conceptual sciences, but also affects the factual and formal sciences; scientific criteria are refined and clarified over time, although the general scientific approach remains the same.

We will edit the second issue of *Metascience*, but we hope that future members of Sopromet will volunteer to edit subsequent issues. We will need the help of collaborators to assess both the metascientific and scientific aspects of the articles. Membership of Sopromet will therefore be possible in a few months when a transactional page is put online on the Sopromet's website.

And for the Little Story

In the spring of 2016, I was looking for a publisher for my translation of this little gem written by Mario Bunge that is the *Philosophical Dictionary*⁴, at once irreverent, daring and serious. It didn't take long to find the Éditions Matériologiques and its publisher Marc Silberstein, whose name was familiar to me since he had published a translation of *Scientific Materialism*⁵ from Mario Bunge while he was editor of the series "Matériologique" at the Éditions Syllepse. The project was accepted immediately because "the *Dictionary* is one of our favorite MB books" and that two other Bunge's books were being translated at the time⁶. I understood then that I had stumbled upon the den of the bungeans in France.

⁴ Bunge, *Philosophical Dictionary*, 2003.

⁵ Bunge, *Le matérialisme scientifique*, 2008 [1981].

⁶ Bunge, *Philosophie de la médecine*, 2019 [2013], Bunge, *Dictionnaire philosophique*, 2020 [2003].

In the spring 2017, Marc Silberstein asked me to participate in the collective *Qu'est-ce que la science... pour vous?*⁷ (What is Science... to You?) I brought out on this occasion the ideas of scientific triad, scientific general discourse and conceptual sciences. On the other hand, although the text was very critical of philosophy, I still used the concept of scientific philosophy instead of that of metascience.

I learned from Marc Silberstein in the summer of 2018 that Springer would publish a collective in English in 2019 in tribute to Mario Bunge for his 100th birthday⁸. He planned to participate in this tribute by the simultaneous publication of my translation of *Philosophical Dictionary* and that of Pierre Deleporte of *Medical Philosophy*: “It will be the small contribution of French speakers to this event dear to our hearts.” It didn’t take more to tell Marc Silberstein that French speakers could do a little more.

For some time now, I have been considering the idea of creating an association to support a research program inspired by the work of Mario Bunge. I planned to found the association and launch its journal in 2021 or 2022. Now that I knew that Springer was organizing a “writing festival”, a *festschrift*, I could not miss the opportunity to participate in the festivities. So I announced to Marc Silberstein the creation of the Society for the Progress of Metascience, whose first issue of his journal, *Metascience*, would pay tribute to Mario Bunge. At the time, I was only considering publishing in electronic format. In turn, Marc Silberstein takes the ball and run with it and offered to publish a paper version of the journal.

The Society for the Progress of Metascience and its journal *Metascience* were founded in the summer of 2018. So it was between spring 2017 and spring 2018 that I completely broke away from philosophy. So it took me almost 25 years to cut all ties with philosophy, one by one, whereas I had always associated philosophy with rational discourse and science! The three key moments of this journey were the equating of philosophy with secular theology by a friend, the discovery of the *Philosophical Dictionary*, and the invitation of Marc Silberstein to write a text for *Qu'est-ce que la science... pour vous?* The idea that philosophy is a secular theology

⁷ Silberstein, *Qu'est-ce que la science... pour vous?*, 2017.

⁸ Matthews, *Mario Bunge: A Centenary Festschrift*, 2019.

allowed me to glimpse the notion of general discourse, that philosophy is only one general discourse among others. The discovery of Mario Bunge's work exposed me to a discourse that seemed less and less philosophical and more and more scientific as I dived into it. The writing of *Une triade scientifique?*⁹ at the invitation of Marc Silberstein, gave me the opportunity to develop the notions of scientific triad, general scientific discourse, and conceptual sciences, but not yet of metascience, which will not become clear until a few months later. Each, in their own way, triggered a process of reflection, a synaptic chain reaction.

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⁹ Maurice, « Une triade scientifique ? », 2017.

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