

Logic(s) in Defective Science
Workshop at UNILOG 2022
(Orthodox Academy of Crete, April 1–11)

Organizers

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Deadline for submissions: September 10, 2021.

When: 6-11 April, 2022 (the workshop will take place at some point during the UNILOG congress).

Where: Orthodox Academy of Crete, Crete, Greece.

Keynote speakers: Gerhard Schurz (Universität Düsseldorf), Michèle Friend (Université Lille Nord-Europe/The George Washington University) and Diderik Batens (Universiteit Gent).

Workshop website: <https://sites.google.com/view/unilog-2022/workshops/logics-in-defective-science?authuser=0>

This workshop is devoted to exploring connections between non-classical logics and the rational use of defective information in the sciences, as well as the inferential practices in the sciences—particularly, those which make use of defective information.

In recent years, there has been increasing interest in the logical constraints of scientific reasoning that make possible the rational use of defective—e.g. false, imprecise, conflicting, incomplete, inconsistent, partial, ambiguous, and vague—information in scientific contexts. On the one hand, for a variety of causes, scientific information is

often inaccurate, poorly empirically supported, and not as relevant as it should be. As a matter of fact, the defective character of scientific data is not only ubiquitous but inevitable. Despite this, scientists have proven to be able to work with such defects and reach significant degrees of scientific success, such as accurate predictions, descriptions, and explanations (see Smith 1988; Brown 1990; Batens 2002, 2017; Meheus 2002; Brown and Priest 2004, 2015; Bueno 2006, 2017; Schurz 2009, 2010, 2011; de Donato-Rodríguez 2016; Friend 2017; Heyninck, Verdée and Heeffer 2017; Šešelja 2017; Friend and Martínez-Ordaz 2018; Martínez-Ordaz 2020). On the other hand, traditional formal approaches to scientific and—more broadly—human reasoning have not fully and properly explained why and how such success is achievable in defective contexts. However, recent works in philosophical logic have shown that any successful analysis of scientific reasoning must pay attention to: (i) the ways in which evidence and probability are actually employed in scientific practice, (ii) the logical connections that underlie different types of scientific explanations, as well as (iii) the historical evidence that shows that defective science is much more common in normal science than it is assumed in traditional approaches (see Hosni 2015; Carnielli and Coniglio 2016; Crupi, Elia, Aprà and Tentori 2018; Krzyanowska and Douven 2018; Sanfilippo, Pfeifer, Over and Gilio 2018; Crupi and Iacona 2020, 2021).

The purpose of this workshop is to discuss novel non-classical formal approaches to the use of defective information in the sciences. Particularly relevant for this assessment is the fact that different standpoints from logic and philosophy of science may provide novel methodological resources for providing fine-grained analyses of the scientific activity as well as heuristics for scientific practice.

The workshop welcomes formal and informal contributions on the different ways to explain and understand defective information in the sciences.

Topics of interest include, but are not limited to the following:

- The problem of defective science from a logical standpoint.
- Rational reconstructions of non-classical scientific inference.
- Proposals for scientific inference from non-classical approaches.
- The role of logic(s) in scientific explanation.
- Applications of non-classical probability to scientific research.
- Studies on the pros and cons of classical vs non-classical approaches to science.
- Logical pluralistic vs monistic approaches to scientific reasoning.
- Non-classical approaches to epistemic paradoxes.

- Non-classical approaches in the understanding or reconstruction of scientific theories and laws.
- Non-classical forms of reasoning (e.g. non-monotonic) in scientific inference.
- The meaning or use of logical symbols (e.g. conditional, conjunction) in science.
- Classical and non-classical approaches for analysing defective databases.
- Revisiting classical approaches in the handling of defective science.