

News item. Retrieved from <http://www.commens.org/news/item/workshop-ampliative-reasoning-sciences>, 17.07.2018.

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**Category:** Academic Meeting

**Title:** Workshop: Ampliative Reasoning in the Sciences

**Description:** Charles Peirce introduced the term “ampliative” for reasoning in which the conclusion of an argument goes beyond that what is already contained in its premises (Collected Papers 2.623). This is how the term is still standardly used in contemporary logic and philosophy of science, and how it is to be understood in the title of this workshop.

The workshop is devoted to the philosophical analysis of different forms of ampliative reasoning as they occur in scientific practice. Abduction - forming explanatory hypotheses starting from a phenomenon that requires explanation - is one such form. A second example is inductive generalisation based on (limited) observations. Other important types are reasoning by analogy and causal reasoning (in which we arrive at a conclusion about a causal relation starting from non-causal premises).

Ampliative reasoning can be studied by philosophers from three perspectives: formal (philosophical logic, probability theory), methodological (philosophy of science, epistemology) and historical (integrated history & philosophy of science). We aim at a mix of contributions from all these perspectives.

Examples of topics within the first perspective, are

- Modeling ampliative reasoning processes (abduction, induction, analogical reasoning, ...) by means of formal logics.
- Modeling these ampliative reasoning processes by means of probability theory.
- Prospects and limitations of the use of formal methods in the study of ampliative reasoning.

Examples of topics within the second perspective, are:

- Varieties of evidence in causal reasoning.
- Benefits and risks of abductive reasoning and inference to the best explanation.
- Benefits and risks of inductive generalisations.
- Drawing inferences based on scientific models.

Examples of topics within the third perspective, are:

- Ampliative reasoning in the work of important early modern physical scientists, such as Copernicus, Newton, Galilei, ...
- Ampliative reasoning in the work of more recent influential scientists (19th

and 20th century) both in the physical sciences and in the life sciences, the behavioural sciences and the social sciences.

- Philosophical reflection on ampliative reasoning in the work of philosophers such as Mill, Whewell, Peirce, Popper, the logical empiricists, ...

Keynote speakers: Chiara Ambrosio (University College London), Ulrike Hahn (Birkbeck - University of London and LMU Munich) & Jon Williamson (University of Kent - Canterbury).

**Place:** Royal Academy of Dutch Language and Literature (KANTL), Koningstraat 18, Ghent, Belgium

**Link:** Workshop

**Keywords:** Ampliative Reasoning, Abduction