

Intuition in mathematics: Epistemology and Experience

Aims.

The global aim is to propose a psycho-phenomenological study of intuition in mathematics. For that we will:

- first, get a deep understanding of the role of intuition in science (and in particular in mathematics) through an extensive bibliographic research as developed by scientists, mathematicians and philosophers. We will focus mainly on the philosophy of mathematics and the psychology of intuition. And for this purpose a regular seminar on intuition has been settled up. Details on the past and future activities in that frame are given below ;
- second, the pre-reflexive content of intuitive experiences lived by mathematicians will be investigated by the means of interviews of explicitation, an accurate first-person protocol of interview developed and validated by C. Petitmengin for intuitive experiences in different fields of knowledge. From the interviews, a model for the mental process occurring during intuitive experience in mathematics will be drawn.
- third, our model will be put in perspective with the traditional philosophical theories of mathematics and the models and/or theories of intuition developed by mathematicians and philosophers, mainly H. Poincaré, in order to elaborate a phenomenological description of intuition in mathematics.

Past and future sessions of the workshop on intuition in mathematics.

Part I: The views of Kant, Brouwer and Gödel on intuition, May 19th and June 16th, 2011.

Part II: Invitation of Dr. Norma-Claudia Yunez-Naude of the Université de Provence I (Marseille - France) for a conference at the CFCUL on "Some epistemological aspects of intuition in mathematical thoughts" – October 6th, 2011.

Part III: Seminar given by Prof. Olga Pombo (CFCUL) on the "Difficulties of intuition by the hand of Poincaré" (October 7th, 2011).

Part IV: (dates to be precised later): Husserl and intuition

Part V: (dates to be precised later) Discovery and justification

Conference at the CFCUL announcement.

International conference in September 2012 (chairman Alexandra Van-Quynh) on the theme: "*Validation of first person data from the epistemological point of view – Application to the investigation of the intuition in mathematics*".

Partnerships.

- 1- The CREA (Centre de Recherche en Épistémologie Appliquée) of the École Polytechnique of Paris (France) through a close collaboration of Michel Bitbol.
- 2- Norma Claudia Yunez-Naude, philosopher of mathematics of the Université de Provence I, (Marseille – France) and member of the CEPERC (Centre d'Épistémologie et d'Ergologie Comparatives - CNRS) of Aix-en-Provence (France).