3rd Internal Report on CFCUL Dr. Daniel Andler and Dr. María-José Frápolli (External Advisors)

In 2010, the CFCUL continued its process of development in the direction we have pointed out in our last report. The internal structure of CFCUL was recently reformulated in 6 research groups (RG). It could be considered that this number is still too large. However, because the CFCUL is guided by a plural, polymorphic conception of Unity of Science, and because it is located within a Faculty of Sciences, the team of CFCUL is composed by members coming from a significant variety of disciplines (Philosophy, Physics, Biology, Medicine, Mathematics, Sociology, Logics) and institutions (Faculty of Sciences, Faculty of Medicine, Faculty of Philosophy, Faculty of Fine Arts), it seems reasonable that CFCUL's organization tries to cover the diversified interests of its members and the several areas of Philosophy of Science in which their research is pursued. Nevertheless, we think that the CFCUL must continue to integrate the different scientific backgrounds of its members in order to expand the inherently interdisciplinary nature of Philosophy of Science.

During 2010, the CFCUL has developed an intense and dynamic scientific activity focused on its 6 RG: 1) Unity of Science, 2) Philosophy of Mathematics, 3) Philosophy of Natural Sciences, 4) Philosophy of Life Sciences, 5) Philosophy of Human Sciences, Ethics and Politics and 6) Science and Art. And in each of them relevant outcomes have been produced.

1) Unity of Science - This RG was particularly active during 2010. We highlight the realization of an International Colloquium Commemorative of the IIIrd Centenary of "Essais de Théodicée" and the following publications:

Olga Pombo, Juan Manuel Torres (Eds.), *Otto Neurath and the Unity of Science,* John Symons, Springer, 2010, VIII, 264 pp.

Olga Pombo, Palavra e Esplendor do Mundo. Estudos sobre Leibniz, Lisboa: Fim de Século, 2010, 301pp.

Ana Paula Silva (2010), *Metamorfoses do conceito de abdução em Peirce. O exemplo de Kepler*, Colecção Thesis nº 3, Lisboa: CFCUL, 269 pp

Cláudia Ribeiro (2010), Electrões inobserváveis e estrelas invisíveis. Em torno do problema do Realismo em Ciência: Bas C. van Fraassen versus Alan Musgrave, Colecção Thesis nº 4, Lisboa: CFCUL, 274 pp.

Juan Manuel Torres (Ed.), *On Kuhn's Philosophy and its Legacy*, **8**.º Caderno de Filosofia das Ciências, Lisboa: CFCUL, 2010, 320 pp.

Olga Pombo, Shahid Rahman, John Symons e Juan Manuel Torres (Eds.), Special Sciences and the Unity of Science, Springer (in press).

The RG has also worked in the context of the International Project Logics, Language and Unity of Science (2008-2009) in partnership with the Research Group «Logic, Language and Information» of University of Sevilla. Again in collaboration with the University of Sevilla, this RG has proposed a new international project entitled "Knowledge Dynamics in the Field of Social Sciences: Abduction, Intuition and Invention". This project aims to take account of a not very developed aspect in the theories about acquisition, transmission and manipulation of knowledge: dynamicity.

2) Philosophy of Mathematics - this RG has developed important international cooperation with institutions such as the Poincaré Archives in Nancy and the University of Lille 3.

The RG developed its activities mostly in the context of the FCT research project, Poincaré. Philosopher of Science, which has organized an international conference "Poincaré, philosopher of science: Problems and Perspectives" (which took place at the CFCUL in January 2011) and which bring together some of the world's leading scholars and experts on Poincaré's works. The RG has also worked in the preparation of a symposium that was submitted to the 14th CLMPS, which is the single most important international conference in philosophy of science, held every four years.

Three books were published:

Augusto J. Franco de Oliveira (Organização e Edição) (2010). *Henri Poincaré - Filosofia da Matemática. Breve antologia de textos de Filosofia da Matemática de Henri Poincaré*, Lisboa: CFCUL, 280 pp.

Augusto J. Franco de Oliveira (Ed. e Coord.); Vasconcellos, F. A. L. (2010), *História das Matemáticas na Antiguidade*, Lisboa: Ludus e Museu de Ciência, 2.ª Edição corrigida e ampliada.

Augusto J. Franco de Oliveira (2010). Lógica & Aritmética - Uma Introdução à Lógica, matemática e computacional, 3ª edição (revista e revisada), Lisboa: Gradiva, 301 pp.

Further, the RG organized two workshops corresponding to the interests of PhD students and Pos-docs:

M. S. Lourenço, leitor e tradutor de Gödel. Workshop organizado pelo CFCUL. 2.ª Edição de *O Teorema de Gödel e a Hipótese do Contínuo*. Anfiteatro da Fundação da FCUL, 19h.

On Non-Classical Logics, workshop internacional organizado pelo CFCUL coordenado por Fernando Soler e Hassan Tahiri, FCUL, das 10h às 18h, Sala 4.2.07

3) Philosophy of Natural Sciences - the research is focused on the Philosophy of Quantum Physics, in particular, the study of the different Quantum Mechanical Interpretations, and in the development of a pioneering work on Nonlinear Quantum Physics. The RG works in the context of two FCT projects (Philosophy of Quantum Mechanics and What is a Physical Theory?).

An important international book was published by this RG, J. R. Croca and J. E. F. Araújo (Eds.) (2010), *A New Vision on PHYSIS - Eurhythmy, Emergence and Nonlinearity*, Lisboa: CFCUL, 416 pp. In this book the authors show the major developments that were opened by de Broglie for a Nonlinear Quantum Physics on the basis of the concept of quantum particle as a complex interaction process between a theta wave (also named the guiding wave), and a singularity (acron).

This RG has gained some international reputation being invited to edit a book in Brazil (José Croca; Rui Moreira (2010), *Diálogos sobre Física Quântica. Dos Paradoxos à Não-Linearidade*, Rio de Janeiro: Capax Dei, 320 pp.).

4) Philosophy of Life Sciences - A notable achievement of this RG was the edition of a special thematic set comprising two issues of the journal *Theory of Biosciences* (IF 1.278) entitled "Darwin evaluated by contemporary evolutionary and philosophical theories" (Vol.129, No. 2-3) by Nathalie Gontier, Francisco Carrapiço, Marco Pina, André Levy, Helena Abreu (Eds.) Springer, 2010.

The guest editors of these two issues are members of this RG. This special issue contains an editorial and 16 peer-reviewed original articles of a selection of the plenary and invited speakers presented at an international conference organized in 2009 on "Evolution today and tomorrow. Darwin Evaluated by Contemporary Evolutionary and Philosophical Theories"

5) Philosophy of Human Sciences, Ethics and Politics - this RG is well integrated inside the Faculty of Sciences of Lisbon University where it develops cutting edge research in the area of Bioethics in collaboration with the Biology Department. It was also invited to lecture in the chair on «Science, Ethics and Politics» in the Master of History and Philosophy of Science offered by the Faculty of Sciences of Lisbon University.

The RG has been able to strengthen collaboration with various international institutions such as Humboldt University, Berlin, the University of Buffalo in the USA, the Ecole des Hautes Études en Sciences Sociales in Paris and the Collège International de Philosophie.

However, this RG continues to be subdivided by four internal lines of research (coming from Citizenship & Society of Knowledge, Philosophical Problems of the Human Sciences, The body in the phenomenology of Merleau-Ponty and Philosophy & Psychoanalysis: on knowledge). That is, we strongly advise the RG to do an effort in order to further its integration.

6) Science and Art - this RG was able to implement a new discipline at the Faculty of Sciences of Lisbon University - "Science and Art" - which is offered as an option to the graduates students of all scientific areas of FCUL.

The RG worked in the context of a huge FCT research project "Image in Science and Art". An intense activity were developed, both in what concerns the organization of events and the publication of results, among of particular note is the organization of an International Colloquium "From the Civilization of the Word towards the Civilization of the Image" and the publication of a book in College Publications, London, Olga Pombo and Alexander Gerner (Eds.) London: College Publications, 2010, "Studies in Diagrammatology and Diagram Praxis".

The RG also organized an exhibition on the relations between Science and Art, "corpoIMAGEM – Representações do Corpo na Ciência e Arte", which took place in Lisbon, at the Pavilhão do Conhecimento, and was estimated to be visited by 800 people/day.

Finally, it is worth pointing highlighting the construction of a database entitled "Lisbon Center for Image in Science and Art (LCISA)". This online platform gained significant weight and visibility having been included in the Lisbon University 1st Centennial Celebrations. It presents more than 600 images and videos from more than 20 Portuguese renowned artists and 70 Portuguese scientists from several research areas. The database may be visited at http://lisboncisa.fc.ul.pt

Tranversal activities of the CFCUL

We would like to stress a transversal feature of the CFCUL that represents a major activity of the CFCUL. - the master

and doctoral teaching as well as the supervision of master and PhD students. In the year we are reporting, the CFCUL had 8 pos-doc students, 20 PhD students and 6 master's students.

We would also like to stress the publication effort of the CFCUL. In addition to the works mentioned above (24 in all), the team of the CFCUL has published 43 papers, among which several in B level journals.

Finally we would like to emphasize another important transversal achievement of the CFCUL: the creation of a blind refereed International Journal: "KAIROS. JOURNAL OF PHILOSOPHY AND SCIENCE". The journal, whose first issue came out in 2010, publishes articles in several European languages and is especially focused on the intersection between science and philosophy and on the practice of philosophy motivated by science.

CFCUL'S EXTERNAL CONSULTANT COMMITTEE 26 September 2011.

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