

ADALACTO #4

MESHS

(2 rue des canoniers)

20 mai

L'architectonique des sciences

MATIN :

9h : accueil des participants

9h10 - 10h10 : **Alexandre Billon - Definitions, vicious circularity and paradoxes**

café

1030h-11h30: **Raffaele Pisano - The architectonic frameworks in the history of science**

11h30-12h30 : **Guillaume Florent – La datation en archéologie**

APRÈS-MIDI :

14h00-15h00 : **Anya Karpenko - Questions and hypotheses in belief revision**

café

15h20-16h20 : **Joke Meheus – La logique déontique**

16h20-17h20 : **Shahid Rahman – La logique et les normes**

Organisation :

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Alexandre Billon (Lille3)

Definitions, vicious circularity and paradoxes

There is a long tradition, going back at least to Richard (1905), Poincaré (1906) and Russell (1906), of blaming circular definitions for the so-called 'paradoxes of self-reference'. In this paper, I draw on the idea that such paradoxes hinge on circular definitions to put forward a paradox schema that fits most of them, including Russell's paradox, the Liar, Berry's paradox and Curry's paradox. According to this schema, which I call the Elusiveness Schema, all these paradoxes hinge on the definition of an object which is at least implicitly circular. In each case, we have good reasons to believe both that this definition succeeds in picking its definiendum, and that it fails because of vicious circularity. Hence the paradox.

This paradox schema has a few interesting features which make it fruitful. It applies, in particular, similarly to the classical paradoxes and to what is often called 'the duals' of these paradoxes (the set whose members are a member of themselves, the Truth-Teller sentence $T_t = 'T_t \text{ is true}'$, etc.). While these duals are

not usually considered paradoxical—it is sometimes said that they are merely ‘pathological’—the Elusiveness Schema shows that some of them, but not all, are in fact genuinely paradoxical. This has consequences both for the classification of the paradoxes and for the way we should solve them.

Raffaele Pisano (Université de Lorraine, Université de Sydney)
The Architectonic Frameworks in the History of Science. Reading Sadi Carnot's Thermodynamics, Lazare Carnot's Mechanics and Newtonian Science

One can see several streams of approaches to conceive and define foundational *mechanical-physical objects* and their *mathematical interpretations* which change both in a physics mathematics domain and a physical one: mathematical-mental modelling of results of the experimental apparatus (experiments, data, errors and modelling) permits to enlarge the hypotheses and arrive to claim some theses.

In my talk, I will present a physics-mathematics relationship and conceptual bridges among thermodynamics (Sadi Carnot) and mechanics (Lazare Carnot vs Isaac Newton) theories. The different uses of conceptual streams in the physical and mathematical reasoning will be discussed.

(Pour un résumé complet et une bibliographie, voir le programme en ligne.)

Guillaume Florent (Céramologue -- Lille3)
La datation en céramologie

L'exercice quotidien de l'étude de la céramique ancienne dans le cadre de l'archéologie préventive m'a révélé le gouffre qui sépare mes conceptions de celles d'un certain nombre de mes pairs, notamment en matière de datation.

Si ces divergences ne consistent qu'en des points de détails, ne touchant qu'à des aspects subsidiaires de la discipline, il ne serait pas nécessaire d'en dire un mot, et nous pourrions nous réjouir de la diversité des opinions. Cependant, en optant pour un relativisme mou, ils dénie à la céramologie la possibilité d'être érigée en science. Pourtant, des méthodes conçues et mises en pratiques dès les années 70 par des archéologues et des mathématiciens donnent à penser, qu'une connaissance empirique et objective de cette matière est accessible, au travers notamment de l'analyse stratigraphique et de la statistique.

Il s'agira donc d'examiner quelques propositions simples, du domaine de la compétence du praticien, afin de refonder la datation sur des bases solides, localisées et réalistes.

Anya Karpenko (Lille3)

Hypotheses and questions in Belief Revision

Classically, Belief Revision systems are built around three main operations on beliefs : expansion, contraction and revision. These form the center of any AGM 1 model for belief revision. However, these models account only partially for understanding of what belief change, and, more generally, non-monotonic reasoning is.

On the other hand, the hypothetical reasoning, despite being a very common form of reasoning, is rarely accounted for formally, especially in its relation to non-monotonic reasoning. One of the frames, which account for hypothetical reasoning (mostly, for proofs under hypothesis) is Constructive Type Theory.

Using the resources of Constructive Type Theory and Dialogical Frames I try to conceive the rules for hypothetical reasoning, which involve revision of hypothetical judgements at face of new information. I try to give further understanding of what belief, knowledge, and hypotheses could mean philosophically in the light of rules obtained.

(Pour un résumé complet et une bibliographie, voir le programme en ligne.)