Workshop on Definitions

"AxDef" Project (Sphere, Centre Gilles Gaston Granger, IHPST)

28th-29th April, 2026

Institut d'histoire et de philosophie des sciences et des techniques (IHPST)
13 rue du Four, 75006
2nd floor, Seminar Room (salle de conférences)

Tuesday 28th April

9:15 – 9:30 Welcome

9:30 – 10:45 Volker Halbach, *"Incompleteness, Reflection, and Implicit Commitment"*

10:45 – 11:15 Coffee break

11:15 – 12:30 Alberto Naibo (online),
"Judgemental and Definitional Equality from a Fregean Perspective"

12:30 – 14:00 Lunch break

14:00 – 15:15 Rachel Boddy, *"Are definitions creative?"*

15:15 – 16:30 Ole Hjortland, *"Against Unrestricted Logical Inferentialism"*

16:30 – 16:45 Coffee break

16h:45 – 18:00 Marco Panza (online),
"On the Epistemic economy of formal definitions"

19h Dinner at "La Boussole" (12 rue Guisarde, 75006)

Wednesday 29th April

9h30 – 10h45 Gil Sagi, *"Engineering mathematical concepts"*

10h45 – 11h15 Coffee break

11h15 – 12h30 Pierre Wagner, *"Carnap on definitions"*

ABSTRACTS — *AxDef* ***Workshop on Definitions*** (28-29 April 2026)

Volker Halbach (University of Oxford)
"Incompleteness, reflection, and implicit commitment"

When we accept a formal system S, we are implicitly committed also to statements partially or fully expressing the soundness of S in the language of S. This claim is a simple version of the Implicit Commitment Thesis (ICT). A paradigmatic example of a statement partially expressing soundness is the arithmetized consistency claim for Peano arithmetic with PA as S. I will try to sharpen ICT. In particular, I will investigate what exactly these additional statements are, what their relative strengths are, and what supports the claim that we are implicitly committed to them. I will consider less familiar systems as base theory S and present cases where the addition of soundness statements to an arithmetically sound system S leads to an inconsistency. Finally, I will consider the overall plausibility of ICT.

Alberto Naibo (IHPST, université Paris 1 Panthéon-Sorbonne)
"Judgemental and definitional equality from a Fregean perspective"

The notions of definitional and judgmental equality play a central role in constructive type theory. However, their relationship is not always clearly defined: sometimes the two notions are identified, while other times they are treated as distinct. This divergence can already be seen in the work of Martin-Löf, who identified the two notions in his discussion of the intensional version of constructive type theory in the mid-1970s, but treated them as distinct in his mid-1980s monograph, where constructive type theory is presented in its extensional version. Nevertheless, in both cases, Martin-Löf referred to some of Frege's positions on identity to support his views. In this presentation, I will attempt to explain the reasons behind these different views about the relationship between definitional and judgmental equality by reading constructive type theory in the light of Frege's distinctions between sense (*Sinn*) and reference (*Bedeutung*), and between function and object, as well as by considering Frege's account of the notion of equality of content (*Inhaltsgleichheit*).

Rachel Boddy (IHPST, CNRS)
"Are definitions creative?"

The introduction of value-ranges of functions is an essential step forward", Frege says in describing the innovations introduced in the logical system of *Grundgesetze*. The reason, he tells us, is because "I define cardinal numbers themselves as extensions of concepts, and extensions of concepts are value-ranges, according to my specifications." But then, what are value-ranges and how are they related to concepts? In this talk, we explore this question. Our discussion is built around two theses. The first is that value-ranges *aren't* classes. The second is that the notion of value-range is a theoretical notion for Frege and that, accordingly, it is determined by the role that value-ranges play in the theory. After supporting these theses, we discuss what value-ranges are, if not classes, and how Frege's definitions are supposed to express content, without being creative.

Ole Hjortland (University of Bergen)
"Against unrestricted logical inferentialism"

Logical inferentialism is the view that the meaning of a logical expression is fully determined by its inference rules. Basic inference rules have the status of implicit definitions, and are therefore

valid in virtue of meaning alone. Typically, the basic inference rules are associated with proof rules, for example the natural deduction introduction and elimination rules : the conjunction-introduction and -elimination rules determine the meaning of `and', the disjunction-introduction and -elimination rules determine the meaning of `or', and so on. As implicit definitions, these basic inference rules cannot be disputed without thereby changing the meaning of the connectives. However, logical inferentialists have all faced a well-known objection : Unless there are restrictions on which inference rules can determine meanings --- and therefore valid arguments --- an artificial connective like Arthur Prior's tonk can be added to a language in a way that allows any proposition to be derived from any set of premises (given some minimal assumptions about the original logic). In his recent book *Shadows of Syntax* (2020), Jared Warren argues that it would be a mistake for the inferentialist to impose restrictions on which inference rules count as meaning-determining, and instead proposes what he calls unrestricted inferentialism : Any collection of inference rules for a logical expression can determine its meaning---included tonk and other ill-behaved connectives. In this paper, I examine the arguments offered in support of unrestricted inferentialism and highlight several problematic consequences of the view. I argue that unrestricted inferentialism is untenable and more generally that inferentialist metasemantics for logical expressions is fundamentally flawed.

Marco Panza (Chapman University)
"On the epistemic economy of formal definitions"

When (mystical) metaphysics is set aside, mathematical objects appear as nothing more than individual intellectual contents subject to appropriate inferential rules, which may be more or less rigid depending on the framework. Their definitions connect the contents that these objects are with other contents. Understanding them consists in identifying these contents and the dependence relations that link them. I consider a definition of a domain of mathematical objects epistemically economical when it fixes the relevant contents by appealing to as few and as basic other contents as possible. In my talk, I will try to make this idea as precise as possible with respect to different kinds of such definitions, which I will distinguish from one another.

Gil Sagi (University of Haifa)
"Engineering mathematical concepts"

Conceptual engineering is a booming topic in the philosophy of language and metaphilosophy today. Arguably, mathematics is a prime example of a discipline where conceptual engineering takes place and is successful. In the talk I'll propose to view mathematical definitions and axioms as tools for conceptual engineering. I'll raise two issues that have been broached in discussions of conceptual engineering : the implementation problem and topic continuity. I'll focus on the first. I'll provide a novel account of mathematical language which explains the increased control afforded when engineering mathematical concepts.

Pierre Wagner (IHPST, université Paris 1 Panthéon-Sorbonne)
"Carnap on definitions"

Carnap devoted a significant part of his work to the issue of the formation and the explanation of concepts, which led him to pay particular attention to definitions and the conditions under which a concept can be defined. In doing so, he drew inspiration from authors who had defended opposing views on this issue and sought to advocate an original position that reflects his general philosophical views. We will seek to characterize Carnap's conception of definitions, its evolution, the difficulties it raises, and the problems it strives to overcome.