▶ THOMAS EHRHARD, FARZAD JAFARRAHMANI, ALEXIS SAURIN, *On denotations of circular and non-wellfounded proofs.*
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This talk investigates the question of denotational invariants of non-wellfounded and circular proofs of the linear logic with least and greatest fixed-points [1]. Indeed, while non-wellfounded and circular proof theory made significant progress in the last twenty years, the corresponding denotational semantics is still underdeveloped.

We will talk about a denotational semantics for non-wellfounded proofs, based on a notion of totality, building on previous work by Ehrhard and Jafarrahmani [2]. Several properties of the semantics will be then discussed: its soundness, the relation between totality and validity and the semantical content of the translation from finitary proofs to circular proofs. Finally, the talk focuses on circular proofs, trying to benefit from their regularity in order to define inductively the interpretation function. It is argued why the usual validity condition is too general for that purpose, while a fragment of circular proofs, strongly valid proofs, constitutes a well-behaved class for such an inductive interpretation.

This talk will be based on a pre-publication available online in which you can find more relevant references.

[1] David Baelde, Amina Doumane, Alexis Saurin, *Infinitary Proof Theory: the Multiplicative Additive Case*, ***25th EACSL Annual Conference on Computer Science Logic, CSL 2016, August 29 - September 1, 2016, Marseille, France*** (Jean-Marc Talbot and Laurent Regnier, editors), Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2016, pp. 42:1–42:17.

[2] Thomas Ehrhard, Farzad Jafarrahmani, *Categorical models of Linear Logic with fixed points of formulas*, ***36th Annual ACM/IEEE Symposium on Logic in Computer Science, LICS 2021, Rome, Italy, June 29 - July 2, 2021*** IEEE, 2021, pp. 1–13.