

Report on the outcomes of a Short-Term Scientific Mission¹

Action number:

Grantee name:

Details of the STSM

Title: Coinductive proof search for inhabitation of quantitative types

Start and end date: 21/05/2023 to 27/05/2023

Description of the work carried out during the STSM

Description of the activities carried out during the STSM. Any deviations from the initial working plan shall also be described in this section.

Decision procedures for the inhabitation problem were analysed for several systems of non-idempotent (quantitative) intersection typing systems, both for call-by-name and call-by-value. The applicability of the coinductive approach was examined, particularly the following aspects: 1) the overload of an approach developed to deal with non-terminating proof search; 2) variations of the analysed typing systems as bidirectional typing systems. The grantee gave a talk in the “Syntax meets semantics” seminar with title “The logical essence of compiling with continuations”.

Description of the STSM main achievements and planned follow-up activities

Description and assessment of whether the STSM achieved its planned goals and expected outcomes, including specific contribution to Action objective and deliverables, or publications resulting from the STSM. Agreed plans for future follow-up collaborations shall also be described in this section.

The mission was a first step in the direction of its goal. The expected immediate outcomes face fundamental difficulties, not yet solved. Plans for follow-up interactions were made. The goal of the mission is ultimately the transfer to program verification and synthesis of a technique developed for proof search in proof theory. In this sense, any results to be obtained in the future will contribute to the Action objectives.

¹ This report is submitted by the grantee to the Action MC for approval and for claiming payment of the awarded grant. The Grant Awarding Coordinator coordinates the evaluation of this report on behalf of the Action MC and instructs the GH for payment of the Grant.