Report on the outcomes of a Short-Term Scientific Mission[1]

Action number: CA20111

Grantee name: Luc Chabassier

Details of the STSM

Title:**An interface for category theory in coq, applied to univalent foundations**

Start and end date: 04/09/2023 to 15/09/2023

Description of the work carried out during the STSM

(max. 500 words)

I am developing a coq plugin allowing to do category theory proofs graphically. Through examples and using the interface, we discussed how it could be useful in practice, and what was lacking. This led to the implementation of a few new features to enable requested workflows. We also experimented on the different ways to install the plugin, that challenges thay posed, and how it could be made easier for other researchers. Finally, I had an occasion to present my work to the DutchCats meating, in which I got some more feedback, and started talking with Johann Commelin, who showed interest in using my plugin.

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.

(max. 500 words)

There were talks about both small scale improvements needed to make the plugin more usable, and more large scale about the vision we had for such a tool. It has led to concrete plans to get this plugin used in a category theory course Benedikt is giving in February to mathematicians. The work needed for this may also open the way to create an online interactive wiki with categorical diagrams that can be manipulated in the browser.

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[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.