



Universality of proofs

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Abstract:

Many paradigms and proof systems cohabit to mechanize logical reasoning. This diversity allows one to perform various kinds of formalizations, ranging from mathematical concepts to software and hardware certification. But it comes at a cost: many efforts have to be duplicated between proof systems, and it is difficult to combine different proof systems in one formalization.

The objective of the working group is to study proofs as a way to interact between proof systems. We follow three guidelines: (a) design a universal proof format, that is expressive enough to represent and combine proofs; (b) provide implementations, that can handle various formats via proof encodings; (c) design universal libraries, that can be built and used in multiple tools.

I will present various successes of the working group in this domain: universal formats, proof checkers and libraries; cooperation between automatic and interactive theorem provers.

Mini Bio:

Chantal Keller is Maître de Conférences at Université Paris-Sud - Université Paris-Saclay since 2015. She obtained her PhD in 2013 at École Polytechnique. She is working on designing various kinds of formalisms to make proof systems interact with each other and with external tools.