## Trocq: Proof Transfer for Free, With or Without Univalence

Libraries of formalized mathematics use a possibly broad range of different representations for a same mathematical concept. Yet light to major manual input from users remains most often required for obtaining the corresponding variants of theorems, when such obvious replacements are typically left implicit on paper. This talk presents Trocq, a new proof transfer framework for dependent type theory. Trocq is based on a novel formulation of type equivalence, used to generalize the univalent parametricity translation. This framework takes care of avoiding dependency on the axiom of univalence when possible, and may be used with more relations than just equivalences. We have implemented a corresponding plugin for the Coq/Rocq proof assistant, in the Elpi meta-language. We use this plugin on a gallery of representative examples of proof transfer issues in interactive theorem proving, and illustrate how Trocq covers the spectrum of several existing tools, used in program verification as well as in formalized mathematics in the broad sense.

Joint work with Enzo Crance and Assia Mahboubi.