▶ PIERRE BOUTRY, *Towards an independent version of Tarski's system of geometry*.
University of Strasbourg.
E-mail: `boutry.pierre@gmail.com`.

In 1926-1927, Tarski designed a set of axioms for Euclidean geometry which reached its final form in a manuscript by Schwabhuser, Szmielew and Tarski in 1983. The differences amount to simplifications obtained by Tarski and Gupta. Gupta presented an independent version of Tarski's system of geometry, thus establishing that his version could not be further simplified without modifying the axioms. To obtain the independence of one of his axioms, namely Pasch's axiom, he proved the independence of one of its consequence: the previously eliminated symmetry of betweenness. However, an independence model for the non-degenerate part of Pasch's axiom was provided by Szczerba for another version of Tarski's system of geometry in which the symmetry of betweenness holds. This independence proof cannot be directly used for Gupta's version as the statements of the parallel postulate differ.

In this talk, we present our progress towards obtaining an independent version of a variant of Gupta's system. Compared to Gupta's version, we split Pasch's axiom into this previously eliminated axiom and its non-degenerate part and change the statement of the parallel postulate. To select this statement, our previous paper, *Parallel postulates and continuity axioms: a mechanized study in intuitionistic logicusing Coq*, proved to be useful so we detail some of these results.