M-STEP SOLVABLE ANABELIAN GEOMETRY OF FINITELY GENERATED FIELDS (JOINT WORK WITH MOHAMED SAIDI)

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We discuss certain variants of Pop's theorem in anabelian geometry of finitely generated fields, where the absolute Galois group is replaced by its maximal m-step solvable quotient. Among others, we show that finitely generated fields can be recovered group-theoretically and functorially (up to taking perfections in positive characteristic) from the maximal m-step solvable quotient of the absolute Galois group for $m\geq m_0$ with a certain explicit bound m_0. As special cases, this includes m-step solvable variants of the Neukirch-Uchida theorem (for number fields) and Uchida's theorem (for global function fields) in anabelian geometry of global fields. The proof of the general case is based on the results for these special cases, and, in this talk, I plan to concentrate on explaining the proof of the general case by assuming the results for the special cases. The main goal of this part of the proof is to show how various valuations are encoded group-theoretically in the m-step solvable absolute Galois groups. Here, we are not only based on basic ideas in the proof of Pop's theorem but also exploit several new inputs and arguments, which may be interesting to experts in anabelian geometry, in valuation theory, and in Galois cohomology.