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**Bartholdi**. *Algorithmic aspects of branched coverings*.

We give a report on a series of articles on the algorithmic study of Thurston maps. We describe branched coverings of the sphere in terms of group-theoretical objects called bisets, and develop a theory of decompositions of bisets. We introduce a canonical "Levy" decomposition of an arbitrary Thurston map into homeomorphisms, metrically-expanding maps and maps doubly covered by torus endomorphisms. The homeomorphisms decompose themselves into finite-order and pseudo-Anosov maps, and the expanding maps decompose themselves into rational maps.

As an outcome, we prove that it is decidable when two Thurston maps are equivalent. We also show that the decompositions above are computable, both in theory and in practice. (Received January 31, 2016)