

# Locally countable pseudovarieties of semigroups

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Following Eilenberg's foundational work [2], efforts for classifying finite semigroups have concentrated in their arrangement in *pseudovarieties* (classes of finite semigroups closed under taking quotients, subsemigroups, and finite direct products). While such classes lack in general free objects, they have profinite free objects. Now, without assuming the Continuum Hypothesis, finitely generated profinite semigroups are either finite, countable, or have the power of the continuum. Thus, it is natural to consider the special cases of pseudovarieties whose finitely generated free profinite semigroups are finite, which appear frequently in the literature, or countable, which are introduced here. The main thrust of this work (joint with O. Klíma [1]) is how such a property arises under operations on pseudovarieties.

## References

- [1] Almeida, J. and Klíma, O., Locally countable pseudovarieties, arXiv:1909.04987, to appear in *Publicacions Matemàtiques*.
- [2] Eilenberg, S., *Automata, Languages and Machines*, volume B. Academic Press, New York, 1976.