

# Profinite approach to conjugacy of substitutive shifts

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Abstract. Following the work of Durand and Leroy (2022), topological conjugacy of minimal substitutive shifts is decidable. But beyond the high theoretical interest of this result, the methods employed in the proof seem difficult to use in practice since they involve potentially heavy computations. However, in certain cases, conjugacy classes can be efficiently distinguished by looking at some weaker invariants that are easy to compute.

In this talk, I will present one way of producing such invariants which relies on the profinite representation of minimal shifts introduced by Almeida. Within this framework, numerical invariants for primitive substitutions arise from a transparent relationship between 1) the prime factors in the coefficients of the characteristic polynomial and 2) the Sylow subgroups of a pronilpotent group associated with the substitution. With concrete examples, I will illustrate the strengths and weaknesses of these invariants.