Studying profinite monoids via logic

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This talk is about my ongoing joint research project with Benjamin Steinberg. We begin with the observation that the free profinite aperiodic monoid over a finite set A is isomorphic to the Stone dual space (spectrum) of the Boolean algebra of first-order definable sets of finite A-labelled linear orders ("A-words"). This means that elements of this monoid can be viewed as elementary equivalence classes of models of the first-order theory of finite A-words. We exploit this view of the free profinite aperiodic monoid to prove both old and new things about it using methods from both topology and model theory, in particular (weakly) saturated models.