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Benjamin Steinberg* (bsteinbg@math.carleton.ca), School of Mathematics and Statistics, Carleton University, 1125 Colonel By Drive, Ottawa, Ontario K1R 5X6, Canada. *Profinite groups, symbolic dynamics and profinite monoids.*

If A is a finite alphabet, then $A^* \cup A^\omega$ is an ultrametric completion of the free monoid A^* . The theories of symbolic dynamics and self-similar groups both live in this space. The free profinite monoid $\widehat{A^*}$ is also an ultrametric completion of A^* and it maps onto $A^* \cup A^\omega$. Many notions from symbolic dynamics can then be lifted to the free profinite monoid. Almeida associated to each irreducible symbolic dynamical system a profinite group which is a conjugacy invariant and also is a maximal subgroup of $\widehat{A^*}$. Using techniques from dynamics he showed that many maximal subgroups of $\widehat{A^*}$ are free profinite, but not all. This answered negatively a longstanding question. However, it still remained open whether all maximal subgroups are projective profinite groups and whether the maximal subgroup of the minimal ideal of $\widehat{A^*}$ is free profinite of countable rank. In joint work with Rhodes, we proved that all the maximal subgroups are projective using Schützenberger’s generalization of the Krasner-Kaloujnine embedding for group-semigroup bimodules. Using Iwasawa’s criterion for freeness, I also proved the maximal subgroup of the minimal ideal is a free profinite group of countable rank. (Received January 12, 2008)