Pseudo-generated/pseudo-finite monoids and semigroups

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Pseudo-finite monoids arise in the study of semigroup algebras. In this talk I will explain the connection between such monoids, monoids having property of *type left-FP1*, left congruences, and the notion of being *pseudo-generated by a finite set*. We extend these notions to apply to semigroups. We show that the statement that a semigroup/monoid S is pseudo-generated by a finite set is equivalent to the universal congruence ω on S being finitely generated as a left congruence. In addition S is *pseudo-finite* if there is a bound on the length of the sequences needed to generate ω from a finite $H \subseteq S \times S$. For groups the notion of being pseudo-generated by a finite set (pseudo-finite) clearly coincides with the notion of the group being finitely generated (finite). This gives rise to the natural questions of finding which semigroups/monoids in particular classes are pseudo-generated or pseudo-finite? I will discuss these questions for some classes of semigroups and monoids.

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