Semigroup Conjugacy and Partition Coverings

Trevor Jack (Illinois Wesleyan University)

We present a solution to Open Problem 6.10 from "Four Notions of Conjugacy for Abstract Semigroups" by João Araújo, et al. The problem asks whether several notions of semigroup conjugacy are partition-covering. The solution in fact answers a generalized version of the problem, which we then use to devise a new definition of semigroup conjugacy that is not partition-covering.

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