

Module Amenability of the Projective Module Tensor Product

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ABSTRACT

Let S be an inverse semigroup with the set of idempotents E . In the current paper, we show that the projective module tensor product $\ell^1(S) \widehat{\otimes}_{\ell^1(E)} \ell^1(S)$ is $\ell^1(E)$ -module amenable when S is amenable. This could be considered as the module version (for inverse semigroups) of a result of Johnson (1972) which asserts that for any (discrete) amenable locally compact group G (when $\ell^1(E) = \mathbb{C}$, the set of complex numbers), the projective tensor product $\ell^1(G) \widehat{\otimes} \ell^1(G) \cong \ell^1(G \times G)$ is amenable.

Keywords: Amenability, module amenability, module derivation, semigroup algebras.