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**Abstract:** It is shown that type I seesaw models based on the standard model Lagrangian extended with three heavy Majorana right-handed fields do not have leptogenesis in leading order, if the symmetries of mass matrices are also the residual symmetry of the Lagrangian. In particular, flavor models that lead to a mass-independent leptonic mixing have a vanishing leptogenesis CP asymmetry. Based on symmetry arguments, we prove that in these models the Dirac-neutrino Yukawa coupling combinations relevant for leptogenesis are diagonal in the physical basis where the charged leptons and heavy Majorana neutrinos are diagonal.

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