

HOMEWORK 9

Let $\{A_i\}_{i \in \mathbb{Z}}$ be a family of abelian groups. Then for any abelian group B , is $\text{Hom}(\bigoplus_{i \in \mathbb{Z}} A_i, B)$ isomorphic to $\bigoplus_{i \in \mathbb{Z}} \text{Hom}(A_i, B)$? Provide a proof if you think it holds; Otherwise give a counterexample.