

## 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.