

HOMEWORK 4

- (a) Given an exact sequence of G -modules $M' \rightarrow M \rightarrow M'' \rightarrow 0$, prove that the induced sequences $M'_G \rightarrow M_G \rightarrow M''_G \rightarrow 0$ is again exact.
- (b) If we are given a short exact sequence $0 \rightarrow M' \rightarrow M \rightarrow M'' \rightarrow 0$, is the sequence $0 \rightarrow M'_G \rightarrow M_G \rightarrow M''_G \rightarrow 0$ is again exact? If yes, prove it; if no, provide a counterexample.