

$$\begin{array}{ccccccc}
0 & \longrightarrow & \mathrm{Hom}_G(\mathbb{Z}[G], A) & \longrightarrow & \mathrm{Hom}_G(\mathbb{Z}[G^2], A) & \longrightarrow & \mathrm{Hom}_G(\mathbb{Z}[G^3], A) \longrightarrow \dots \\
& & \varphi^* \downarrow & & \varphi^* \downarrow & & \varphi^* \downarrow \\
0 & \longrightarrow & \mathrm{Hom}_H(\mathbb{Z}[H], A) & \longrightarrow & \mathrm{Hom}_H(\mathbb{Z}[H], A) & \longrightarrow & \mathrm{Hom}_H(\mathbb{Z}[H], A) \longrightarrow \dots
\end{array}$$