$$\begin{tikzcd}
0 \arrow[r] & R_0 \arrow[r] \arrow[d, "\Phi_0"] & E_0 \arrow[r, "\pi"] \arrow[d, "\Phi_0"] & M \arrow[r] \arrow[d, "\varphi"] & 0 \\
0 \arrow[r] & S_0 \arrow[r] & F_0 \arrow[r, "\pi'"] & N \arrow[r] & 0
\end{tikzcd}$$

$R_0 = \ker \pi$

$S_0 = \ker \pi'$

restriction.

$$\begin{tikzcd}
\arrow[r] & E_1 \arrow[r] \arrow[d, dashed, "\Phi_1"] & R_0 \arrow[r] \arrow[d, "\Phi_0"] & 0 \\
\arrow[r] & F_1 \arrow[r] & S_0 \arrow[r] & 0
\end{tikzcd}$$

$$\begin{tikzcd}
0 \arrow[r] & R_1 \arrow[r] \arrow[d, "\Phi_1"] & E_1 \arrow[r] \arrow[d, "\Phi_1"] & R_0 \arrow[r] \arrow[d] & 0 \\
0 \arrow[r] & S_1 \arrow[r] & F_1 \arrow[r] & S_0 \arrow[r] & 0.
\end{tikzcd}$$

$$\begin{tikzcd}
E_2 \arrow[r] \arrow[d, dashed, "\Phi_2"] & R_1 \arrow[r] \arrow[d, "\Phi_1"] & 0 \\
F_2 \arrow[r] & S_1 \arrow[r] & 0
\end{tikzcd}$$

Continue in this manner, then.

$$\begin{tikzcd}
H_0(E.(M)) \arrow[r, "\Phi_*"] \arrow[d, "\cong"] & H_0(E.(N)) \arrow[d, "\cong"] \\
M \arrow[r, "\varphi"] & N
\end{tikzcd}$$

///

Proof of assertion 3.

$$\begin{tikzcd}
E_2 \arrow[r] \arrow[d, "\Phi_2, \Psi_2"] & E_1 \arrow[r] \arrow[d, "\Phi_1, \Psi_1"] & E_0 \arrow[r] \arrow[d, "\Phi_0, \Psi_0"] & M \arrow[r] \arrow[d, "\varphi, \varphi"] \arrow[dl, dashed] & 0 \\
F_2 \arrow[r] & F_1 \arrow[r] & F_0 \arrow[r] & N \arrow[r] & 0
\end{tikzcd}$$