

$$\begin{array}{ccccc}
 & & & & 0 \\
 & & & \nearrow & \\
 & 0 & \xrightarrow{0 \times 0} & 0 \oplus 0 & \xrightarrow{0} 0 \\
 & \nwarrow & & \nwarrow & \\
 & & & & 0
 \end{array}$$

$$\begin{array}{ccccc}
 & & & & 0 \\
 & & & \nearrow & \\
 & \mathbb{Z} & \xrightarrow{x \mapsto (2x, 0)} & \mathbb{Z} \oplus 0 & \xrightarrow{x \mapsto x \bmod 2} \mathbb{Z}_2 \\
 & \nwarrow & & \nwarrow & \\
 & & & & 0
 \end{array}$$

$$\begin{array}{ccccc}
 & & & & 0 \\
 & & & \nearrow & \\
 & \mathbb{Z} & \xrightarrow{(i^0, -j^0)} & \mathbb{Z} \oplus \mathbb{Z} & \xrightarrow{l^0 - r^0} H_0 \mathbb{RP}^2 \\
 & \nwarrow & & \nwarrow & \\
 & & & & 0
 \end{array}$$

$$\begin{array}{ccccc}
 & & & & \delta_0 \\
 & & & \nearrow & \\
 & 0 & & & \\
 & \nwarrow & & \nwarrow & \\
 & & & & 0
 \end{array}$$