

Method 1: Using package `xy`

$$\begin{array}{ccccccc} & \curvearrowleft & H^{k+1}(M) & \xrightarrow{i^*} & \cdots & & \\ & & & & d^* & & \\ & \curvearrowleft & H^k(M) & \xrightarrow{i^*} & H^k(U) \oplus H^k(V) & \xrightarrow{j^*} & H^k(U \cap V) \\ & & & & d^* & & \\ & & & & & \cdots & \xrightarrow{j^*} H^{k-1}(U \cap V) \end{array}$$

Method 2: Using package `tikz-cd`

$$\begin{array}{ccccccc} & \curvearrowleft & H^{k+1}(M) & \xrightarrow{i^*} & \cdots & & \\ & & & & d^* & & \\ & \curvearrowleft & H^k(M) & \xrightarrow{i^*} & H^k(U) \oplus H^k(V) & \xrightarrow{j^*} & H^k(U \cap V) \\ & & & & d^* & & \\ & & & & & \cdots & \xrightarrow{j^*} H^{k-1}(U \cap V) \end{array}$$

Method 3: Using package `tikz`

$$\begin{array}{ccccccc} & \curvearrowleft & H^{k+1}(M) & \xrightarrow{i^*} & \cdots & & \\ & & & & d^* & & \\ & \curvearrowleft & H^k(M) & \xrightarrow{i^*} & H^k(U) \oplus H^k(V) & \xrightarrow{j^*} & H^k(U \cap V) \\ & & & & d^* & & \\ & & & & & \cdots & \xrightarrow{j^*} H^{k-1}(U \cap V) \end{array}$$