

$$\begin{array}{ccc}
 \pi_1(\bigvee_{i \in I} S^1) & \xrightarrow{\bigoplus r_{i*}} & \bigoplus_{i \in I} \pi_1(S^1) \\
 \downarrow h & & \cong \downarrow \bigoplus_{i \in I} h \\
 H_n(\bigvee_{i \in I} S^1) & \xrightarrow[\bigoplus r_{i*}]{\cong} & \bigoplus_{i \in I} H_n(S^1)
 \end{array}$$