$$\pi_1\left(\bigvee_{i \in I} S^1\right) \xrightarrow{\ \oplus r_{i*}\ } \bigoplus_{i \in I} \pi_1(S^1)$$

$$\downarrow h \qquad\qquad\qquad \cong \downarrow \oplus_{i \in I} h$$

$$H_n\left(\bigvee_{i \in I} S^1\right) \xrightarrow[\ \oplus r_{i*}\ ]{\cong} \bigoplus_{i \in I} H_n(S^1)$$