

$$\begin{array}{ccccc}
 & & C & & \\
 & \swarrow u & \downarrow v & \searrow h_{k+1} & \\
 A_1 \times \cdots \times A_k & \xleftarrow{\pi'_1} & A_1 \times \cdots \times A_k \times A_{k+1} & \xrightarrow{\pi'_2} & A_{k+1}
 \end{array}$$