

$$\begin{array}{ccccc}
 \Omega(A) & \xhookrightarrow{\iota_A} & P_A & \xrightarrow{\pi_A} & A \\
 \downarrow \Omega(f) & & \downarrow p_f & & \downarrow f \\
 \Omega(B) & \xhookrightarrow{\iota_B} & P_B & \xrightarrow{\pi_B} & B
 \end{array}$$