

$$\begin{array}{ccccc}
 \Omega(A) & \hookrightarrow & P_A & \longrightarrow & A \\
 \Omega(f \circ g) - \Omega(f) \circ \Omega(g) \downarrow & \nearrow \phi & \downarrow p_{f \circ g} - p_f \circ p_g & & \downarrow f \circ g - f \circ g = 0 \\
 \Omega(C) & \hookrightarrow & P_C & \longrightarrow & C
 \end{array}$$