

$$\begin{array}{ccccc}
 & & A^{n+1}(k) & \xrightarrow{\theta_k} & P^n(k) \\
 & & \downarrow A^{n+1}(\varphi) & & \downarrow P^n(\varphi) \\
 k & & & & \\
 \downarrow \varphi & & & & \\
 k' & & A^{n+1}(k') & \xrightarrow{\theta_{k'}} & P^n(k')
 \end{array}$$