

$$\begin{array}{ccc}
 (u_{i-1})_A & \xrightarrow{(\beta_i)_A} & (u_i)_A \\
 & \searrow (\Gamma_{u_{i-1}})_A & \swarrow (\Gamma_{u_i})_A \\
 & (w^{(n)})_A &
 \end{array}$$