$$\cdots \longrightarrow R^{(X^k)} \oplus R^{(X^{k-1})} \xrightarrow{\left(\begin{smallmatrix} 0 & 1 \\ 0 & 0 \end{smallmatrix}\right)} R^{(X^{k+1})} \oplus R^{(X^k)} \longrightarrow \cdots$$

$$p_{X^k} \circ (1_{R^{(X^k)}}, R^{(d^{k-1})}) \Big\downarrow \qquad\qquad \Big\downarrow p_{X^{k+1}} \circ (1_{R^{(X^{k+1})}}, R^{(d^k)})$$

$$\cdots \longrightarrow X^k \xrightarrow{\quad d^k \quad} X^{k+1} \longrightarrow \cdots$$