

$$\cdots \rightarrow V_{k+1} \xrightarrow{\partial_{k+1}} V_k \xrightarrow{\partial_k} V_{k-1} \rightarrow \cdots$$

$$f_{k+1} \downarrow$$

$$f_k \downarrow$$

$$f_{k-1} \downarrow$$

$$\cdots \rightarrow V'_{k+1} \xrightarrow{\partial'_{k+1}} V'_k \xrightarrow{\partial'_k} V'_{k-1} \rightarrow \cdots$$