$$\Rightarrow \quad K_n \supset \cdots {}'F_{p+1}K_n \supset {}'F_p K_n \supset {}'F_{p-1}K_n \supset \cdots \supset {}'F_1 K_n \supset {}'F_0 K_n$$

$$K_n \supset \cdots {}''F_{p+1}K_n \supset {}''F_p K_n \supset {}''F_{p-1}K_n \supset \cdots \supset {}''F_1 K_n \supset {}''F_0 K_n.$$

According to Th. 11.10. on P 313. Rotman

$$E^{r+1}_{p,q} = \ker d^r_{p,q} / \operatorname{Im} d^r_{p+r,\,q-r+1} \qquad \text{where}$$

$$E^r_{p+r,\,q-r+1} \xrightarrow{d^r_{p+r,q-r+1}} E^r_{p,q} \xrightarrow{d^r_{p,q}} E^r_{p-r,\,q+r-1}.$$

$${}'E^0_{p,q} = \frac{{}'F_p K_{p+q}}{{}'F_{p-1}K_{p+q}} = \frac{K_{p,q} \oplus K_{p-1,q+1} \oplus \cdots \oplus}{K_{p-1,q+1} \oplus \cdots} \cong K_{p,q} = E_p \otimes F_q$$

$$\downarrow$$

$${}'E^0_{p,q-1} = \frac{{}'F_p K_{p+q-1}}{{}'F_{p-1}K_{p+q-1}} = \frac{K_{p,q-1} \oplus K_{p-1,q} \oplus \cdots}{K_{p-1,q} \oplus \cdots} \cong K_{p,q-1} \cong E_p \otimes F_{q-1}$$

$\Rightarrow$ $\partial_M \otimes 1 \pm 1 \otimes \partial_N$ induces a map $1 \otimes \partial_N$ from $E_p \otimes F_q$ to $E_p \otimes F_{q-1}$.

$$\Rightarrow \quad {}'E^1_{p,q} = H_q(E_p \otimes F.(N),\ 1 \otimes \partial_N)$$

$${}''E^0_{q,p} = \frac{{}''F_q K_{p+q}}{{}''F_{q-1}K_{p+q}} = \frac{K_{p,q} \oplus K_{p+1,q-1} \oplus K_{p+2,q-2} \oplus \cdots}{K_{p+1,q-1} \oplus K_{p+2,q-2} \oplus \cdots} \cong K_{p,q} = E_p \otimes F_q$$

$${}''E^0_{q-1,\,p} = \frac{{}''F_{q-1} K_{p+q-1}}{{}''F_{q-2}K_{p+q-1}} = \frac{K_{p,q-1} \oplus K_{p+1,q-2} \oplus K_{p+2,q-3} \oplus \cdots}{K_{p+1,q-2} \oplus K_{p+2,q-3} \oplus \cdots} \cong K_{p,q-1}$$

$${}''E^0_{q,p-1} = K_{p-1,q} \cong E_{p-1} \otimes F_q$$

$$\Rightarrow \quad {}''E^0_{q,p} \xrightarrow{d^0} {}''E^0_{q,p-1} \Rightarrow H_p(E.(M) \otimes F_q,\ \partial_M \otimes 1) = {}''E^1_{q,p}.$$