

Canonical form?

Definition 1.1 (Simplest form). Let $\{C_k\}_{k=0}^\infty$ be a chain complex, with some basis $\{e_k^i\}$. Then we say that $\{C_k\}_{k=0}^\infty$ is in its simplest form if, de_k^i is either 0 or another generator.

Definition 1.2 (Complex with ordered generators). Let $\{C_k\}_{k=0}^\infty$ be a chain complex, with some basis $\{e_k^i\}$. Then we say that $\{C_k\}_{k=0}^\infty$ has ordered generators if there is a fixed order in for every $\{C_k\}$.

Remark. *A complex with ordered generators gives naturally a filtration on the complex.*