HOMEWORK 12

1. In the proof of Theorem 6.10, show that $\mathrm{Cone}(\alpha)^n$, when endowed with the norm given by the maximum of the norms of its summands, is canonically isomorphic to the topological dual of $\mathrm{Cone}(\alpha)_n$ via the pairing

$$(\phi, \psi)(v, w) = \phi(v) - \psi(w),$$

and $(\mathrm{Cone}(\alpha)^\bullet, \bar{\delta}^\bullet)$ coincides with the normed dual cochain complex of $(\mathrm{Cone}(\alpha)_\bullet, \bar{d}_\bullet)$.

2. In the proof of Theorem 6.10, show that the connecting homomorphism ∂ coincides with the map $H_{n-1}(\alpha)$.