i) $d(x \otimes 1) = dx \otimes 1$ ($\overleftrightarrow{F}$ is a subcomplex)

ii) $$d(x \otimes c) = dx \otimes c + (-1)^{\deg x} x \otimes dc$$
$$+ \tau(x \otimes c) \otimes 1$$
$$+ \sum \tau(x \otimes c') \otimes c''$$

where $c \in \bar{C}$, $\bar{\Delta}(c) = \sum c' \otimes c''$

($\overleftrightarrow{E}$ is a diff comodule)

iii) $$d\tau(x \otimes c) + \tau(dx \otimes c) + (-1)^{\deg x} \tau(x \otimes dc)$$
$$+ \sum \tau\left[\tau(x \otimes c') \otimes c''\right] = 0$$

$$\left(\Longleftrightarrow \quad d^2 = 0\right).$$

<u>Proper injective resolutions</u>:

a) $f : M \to N$ is a proper mono. of comodules:

a1) f is a morphism of diff comodules

a2) f is an R-split mono of chain complexes

b) M is a proper injective:

$M = V \otimes C$ (or a retract thereof)

c) $\operatorname{coker}(f : M \to N) = M/\text{image } f$

Can make proper injective resolutions

$0 \to M \to Q_*$ as follows: