b) <u>cotensor product of differential comodules M, N over C</u>:

$$M \,\square_C\, N = \text{equalizer } M\otimes N \underset{1\otimes\Delta}{\overset{\Delta\otimes 1}{\rightrightarrows}} M\otimes C\otimes N$$

c) <u>formal properties</u>

assoc: $(Y \times_A Z) \times_B W = Y \times_A (Z \times_B W)$

$$(M \,\square_C\, N)\,\square_D\, P = M \,\square_C\, (N \,\square_D\, P)$$

unit:

$$\begin{tikzcd} Y \arrow[r, "\Delta"] \arrow[dr, "="'] & Y \times X \\ & Y \times_X X \arrow[u] \end{tikzcd} \qquad \begin{tikzcd} Y \arrow[r, "\Delta"] \arrow[dr, "="'] & X \times Y \\ & X \times_X Y \arrow[u] \end{tikzcd}$$

$$\begin{tikzcd} M \arrow[r, "\Delta"] \arrow[dr, "="'] & M \otimes C \\ & M \,\square_C\, C \arrow[u] \end{tikzcd} \qquad \begin{tikzcd} M \arrow[r, "\Delta"] \arrow[dr, "="'] & C \otimes M \\ & C \,\square_C\, M \arrow[u] \end{tikzcd}$$

d) <u>connection map</u>

$$\eta : C(E) \longrightarrow C(Y) \,\square_{C(X)}\, C(Z) \subseteq C(Y)\otimes C(Z)$$

$$= (h\otimes k)\Delta$$

i.e. $\eta : E = Y \times_X Z \longrightarrow Y \,\square_X\, Z$