Start: $M_1$ = right diff comodule over diff coalg-

$i=2,\dots,n-1$: $M_i$ = diff bicomodule over diff $C_{i-1}$ - $C_i$;

$M_n$ = left diff comodule over diff c

Notation: $M_1{}_{C_1},\ {}_{C_1}M_2{}_{C_2},\ \dots,\ {}_{C_{n-1}}M_n$

Note: A differential bicomodule $M$ over

is just a differential comodule over

via: $M \longrightarrow C\otimes M\otimes D \xrightarrow{T\otimes 1} M\otimes C$

where $C^{opp}$ has diagonal

$C \xrightarrow{\Delta} C\otimes C \xrightarrow{T} C\otimes C$: $\quad T($

$(-1)^{d}$

Make homological equivalent Cartan construct

$M_i \xrightarrow{\simeq} T_i = T(M_i)$ over $C_i, C_i^{opp}\otimes C$

Definitions: a) homologically invariant iterated cotensor p

$$T_1 \square_{C_1} T_2 \square_{C_2} \cdots \square_{C_{n-1}} T_n$$

$$(= M_1 \tilde{\square}_{C_1} M_2 \tilde{\square}_{C_2} \cdots \tilde{\square}_{C_{n-1}} M_n)$$

b) iterated differential Cotor is:

$$\mathrm{Cotor}^{C_1,\dots,C_{n-1}}(M_1,\dots,M_n) = H(T_1 \square_{C_1} T_2 \square_{C_2} \cdots$$