* GIBBS/DUHEM-EN ERLAZIOA

(PARAMETRO INTENTSIBOAK ET DIRA INDEPEN.)
(LEHEN ORDENA HOMOGENEOTASUNAREN ON.)

(1) - ERA FORMALEAN :

(i) - $U = U(S, V, N)$

$u = u(s, v)$

$$\left.\begin{array}{l} T = T(s,v) \\ p = p(s,v) \\ \mu = \mu(s,v) \end{array}\right\} \begin{array}{l} \rightarrow s = s(T,v) \\ \rightarrow v = v(s,p) \end{array} \left.\vphantom{\begin{array}{l} T = T(s,v) \\ p = p(s,v) \\ \mu = \mu(s,v) \end{array}}\right\} \Rightarrow \boxed{\mu = \mu(T,p)}$$

(ii) - $U = U(S, V, N_1, \dots, N_n)$

$u = u(s, x_1, x_2, \dots, x_n)$

$$P_K \equiv \left(\frac{\partial U}{\partial X_K}\right)_{S,X\dots} = P_K(S, X_1, \dots)$$

$$\frac{1}{X_K}\left[\{S, X_1, \dots, X_n\}\right]$$

$$P_K = P_K\left(S/X_K, X_1/X_K, \dots, X_n/X_K\right) \qquad X_1/X_1 = 1$$

(ALDAGAI-KOPURUA) = EKUAZIO-KOPURUA − 1

(2) - EULER-REN EKUAZIOTIK ABIATUZ :

(iii) - $$d\left\{ U = TS + \sum_{K=1}^{N} P_K X_K \right\}$$

$$dU = TdS + SdT + \sum_{K=1}^{N} P_K dX_K + \sum_{K=1}^{N} dP_K \cdot X_K$$

$$\boxed{0 = SdT + \sum_{K=1}^{N} X_K dP_K}$$

$$\boxed{\sum_{K=1}^{N} X_K dP_K = 0}$$

ALDAKUNTZEN ARTEKO LOTURAK

G/D erlazioaren adibidea