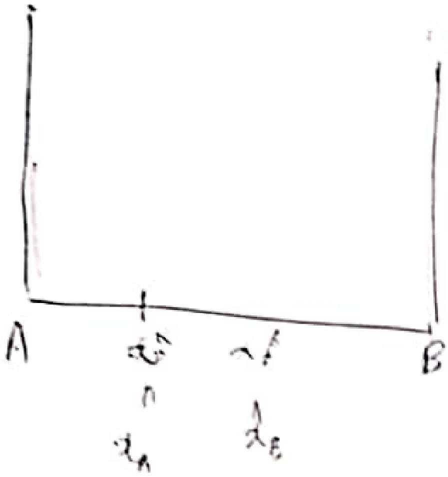

~~2021 1학기 박재성~~

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$\Delta G_{m,A} = G_A^{\beta} - G_A^{\alpha}$

$\Delta G_{m,\beta} = G_B^{\alpha} - G_B^{\beta}$

$\Delta G^{\alpha} = x_A G_A^{\alpha} + x_B G_B^{\alpha}$

$+ RT(x_A \ln x_A + x_B \ln x_B) + \Omega x_A x_B$

$\Delta G^{\beta} = x_A G_A^{\beta} + x_B G_B^{\beta} + RT(x_A \ln x_A + x_B \ln x_B)$

$+ \Omega x_A x_B$

using common tangent condition

it comes out that

$$\left.\frac{d(\Delta G^{\alpha})}{dx_B}\right|_{x_B = x_B^{\alpha}} = \left.\frac{d(\Delta G^{\beta})}{dx_B}\right|_{x_B = x_B^{\beta}}$$

& derivating this eqn)

$\hookrightarrow$ ① $\hookrightarrow$ ②

① $\Rightarrow -G_A^{\alpha} + G_B^{\alpha} + RT(-\ln(1-X_B^{\alpha}) + \ln X_B^{\alpha}) + \Omega^{\alpha}(1-2X_B^{\alpha})$

② $\Rightarrow -G_A^{\beta} + G_B^{\beta} + RT(-\ln(1-X_B^{\beta}) + \ln X_B^{\beta}) + \Omega^{\beta}(1-2X_B^{\beta})$

$\Rightarrow (G_A^{\beta} - G_A^{\alpha}) + (G_B^{\alpha} - G_B^{\beta}) + RT(\ln)\left(\frac{X_B^{\alpha}}{1-X_B^{\alpha}} \cdot \frac{1-X_B^{\beta}}{X_B^{\beta}}\right)$

$+ \Omega^{\alpha}(1-2X_B^{\alpha}) + \Omega^{\beta}(1-2X_B^{\beta}) = 0$

const const when regular solution model

~~not depending on~~ reference state 에 의존없는 되지 않고

unique 한 value를 가진다.