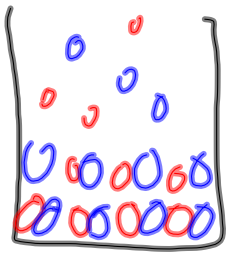


$P_A = X_A \cdot P_A^o$

$P_B = X_B \cdot P_B^o$

$P_T = P_A + P_B$

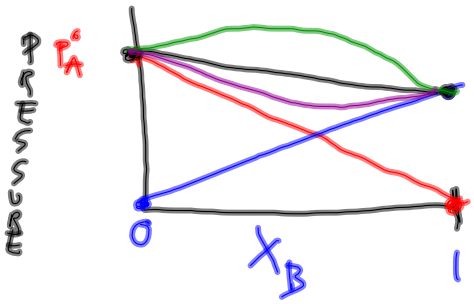
$= X_A \cdot P_A^o + X_B \cdot P_B^o$

$X_A + X_B = 1$

$\downarrow$

$X_A = 1 - X_B$

$P_T = (1 - X_B) \cdot P_A^o + X_B \cdot P_B^o$



- positive deviations from Raoult's Law
- Negative deviations from Raoult's Law
- vapor pressure of the solution predicted by Raoult's Law
- partial pressure of solvent predicted by Raoult's Law
- partial pressure of solute predicted by Raoult's Law

3.95 g CS_2 $P^\circ = 515$ torr

2.43 g CH_3COCH_3 $P^\circ = 332$ torr

1. What is the predicted pressure of the solution according to Raoult's Law?

2. If the actual pressure of the solution is 645 torr are the CS_2 - CH_3COCH_3 stronger or weaker than other interactions?

$$3.95\ g\ CS_2 \left(\frac{1\ mol\ CS_2}{76.15\ g\ CS_2}\right)$$

$$= 0.051871\ mol\ CS_2$$

$$2.43\ g\ Ac \left(\frac{1\ mol\ Ac}{58.078\ g\ Ac}\right)$$

$$= 0.04184\ mol\ Ac$$

$$X_{CS_2} = \frac{0.051871\ mol}{0.051871\ mol + 0.04184\ mol}$$

$$= 0.5535$$

$$X_{Ac} = 0.4465$$

$$P_T = (0.5535)(515\ torr) + (0.4465)(332\ torr)$$

$$285\ torr + 148\ torr$$

$$= 433\ torr$$