

(5)

A	$f_{A_0}$	$-f_{A_0} \frac{x}{2}$	$f_{A_0}(1-x)$
B	0	$f_{A_0} \frac{x}{2}$	$f_{A_0} \frac{x}{2}$
C	$f_{C_0}$	0	$f_{C_0}$

$$f_T = f_{A_0} + f_{C_0} - f_{A_0} \frac{x}{2}$$

$$f_T = f_{T_0} - \frac{f_{A_0}}{2f_{A_0}} (f_{A_0} - f_A)$$

$$f_T = f_{T_0} - \frac{f_{A_0}}{2} + \frac{f_A}{2}$$

$$\frac{f_T}{f_{T_0}} = \left(1 - \frac{f_{A_0}}{2f_{T_0}}\right) + \frac{f_A}{2f_{T_0}}$$

$$V = V_0 \left[ \left(1 - \frac{f_{A_0}}{2f_{T_0}}\right) + \frac{f_A}{2f_{T_0}} \right]$$

$$\frac{df_A}{dV} = \frac{-K C_A^2 \cdot V^2}{V_0^2 \left[ \left(1 - \frac{f_{A_0}}{2f_{T_0}}\right) + \frac{f_A}{2f_{T_0}} \right]^2}$$

$$\frac{df_A}{dV} = \frac{-K f_A^2}{V_0^2 \left[ \left(1 - \frac{f_{A_0}}{2f_{T_0}}\right) + \frac{f_A}{2f_{T_0}} \right]^2}$$

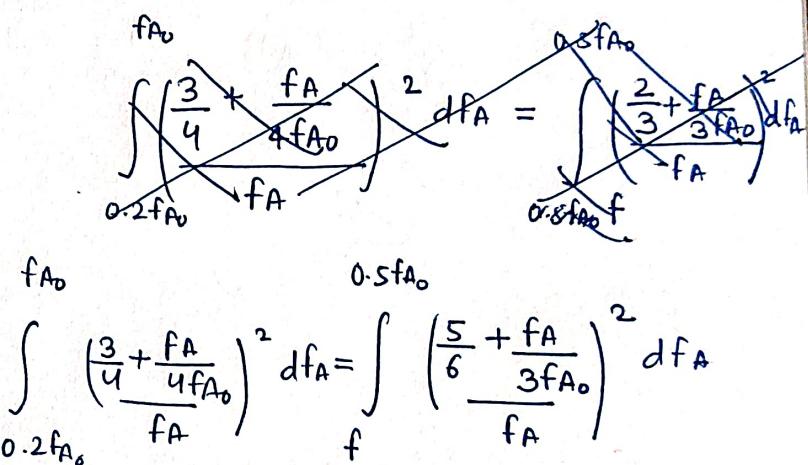
$$\frac{V_0^2}{K} \int \left[ \frac{\left(1 - \frac{f_{A_0}}{2f_{T_0}}\right) + \frac{f_A}{2f_{T_0}}}{f_A} \right]^2 df_A = - \int dV$$

equating units  
for I & II

\* assumed initial  $V_0$  as constant

$$\text{Case I } f_{T_0} = 2f_{A_0} \quad f_A \rightarrow f_{A_0} \rightarrow 0.2f_{A_0}$$

$$\text{Case II } f_{T_0} = \frac{3}{2}f_{A_0} \quad f_A \rightarrow 0.5f_{A_0} \rightarrow ?$$



$$\int_{0.2f_{A_0}}^{f_A} \left( \frac{3}{4} + \frac{f_A}{4f_{A_0}} \right)^2 df_A = \int_f \left( \frac{5}{6} + \frac{f_A}{3f_{A_0}} \right)^2 df_A$$

$$f \approx 0.187 f_{A_0}$$

$$x = \frac{0.5 f_{A_0} - 0.187 f_{A_0}}{0.5 f_{A_0}} = 0.626$$

62.6 % conversion.