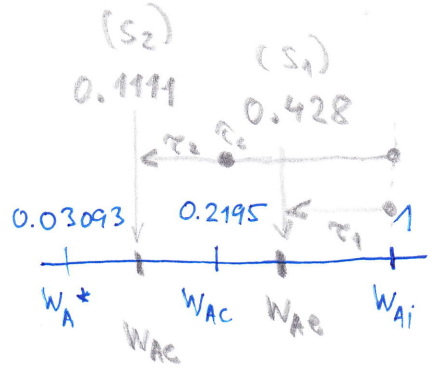


15-9

$w_i = 50\%$
 $w_c = 18\%$
 $w^* = 3\%$
 $S = 15 \text{ m}^2$

$w_{Ai} = \frac{0.5}{1-0.5} = 1$
 $w_{Ac} = \frac{0.18}{1-0.18} = 0.2195$
 $w_A^* = \frac{0.03}{1-0.03} = 0.03093$



$m_c + w_{Ai} = 50 \text{ kg}$
 $m_c + w_{Ac} = 35.7 \text{ kg}$
 $w_{E,2} = 10\%$

$\frac{w_{Ai}}{m_c} = 1 \rightarrow w_{Ai} = 1 \cdot m_c$
 $m_c + w_{Ai} = m_c + 1 \cdot m_c = 50 \text{ kg}$
 $2m_c = 50 \text{ kg}$
 $m_c = 25 \text{ kg}$

$w_{Ae} = 35.7 - m_c$
 $w_{Ac} = 35.7 - 25 = 10.7 \text{ kg}$
 $w_{Ae} = \frac{w_{Ac}}{m_c} = \frac{10.7}{25} = 0.428$

$S_1 = 15 \text{ m}^2$ $S_2 = S_1 \cdot X$

$N_A = \phi_A \cdot a_c$
 $N_A = - \frac{dW_A}{d\tau}$

I. obdobi: $N_A^I = k_1$: $w_A > w_{Ac}$
 II. obdobi: $N_A^{II} = k_2 \cdot (w_A - w_A^*)$: $w_A < w_{Ac}$

$w_A = w_{Ac} \rightarrow N_A^I = N_A^{II}$
 $k_1 = k_2 \cdot (w_{Ac} - w_A^*)$
 $N_A^I = k_1$
 $k_2 = \frac{k_1}{w_{Ac} - w_A^*} = \frac{N_A^I}{w_{Ac} - w_A^*}$

Prve I. doba (S_1)
 $\int_{w_{Ai}}^{w_{Ae}} -dW_A = \int_0^{\tau_1} N_A^I \cdot d\tau$

$[W_A]_{w_{Ai}}^{w_{Ae}} = N_A^I \cdot \tau_1 \rightarrow 1 - 0.428 = \phi_A^I \cdot a_{c1} \cdot \tau_1 = 0.572$

I. & II. doba (S_2)

$\int_{w_{Ai}}^{w_{Ac}} -dW_A = \int_0^{\tau_c} N_A^I \cdot d\tau \rightarrow 1 - 0.2195 = \phi_A^I \cdot X \cdot a_{c1} \cdot \tau_c = 0.7805$

$-dW_A = k_2 \cdot (w_A - w_A^*) \cdot d\tau$

$\int_{w_{Ac}}^{w_{Ae}} \frac{dW_A}{w_A - w_A^*} = \int_{\tau_c}^{\tau_2} \frac{N_A^I}{w_{Ac} - w_A^*} \cdot d\tau = \frac{\phi_A^I \cdot X \cdot a_{c1}}{w_{Ac} - w_A^*} \cdot (\tau_2 - \tau_c) = \ln \frac{w_{Ac} - w_A^*}{w_{Ae} - w_A^*}$

Ze zadání:
 $\tau_1 = \tau_2$
 $w_{Ae} = \frac{0.1}{1-0.1} = 0.1111$

$X \equiv w_A - w_A^*$
 $dx = dW_A$
 $\int_{x_1}^{x_2} \frac{dx}{x} = - \left[\ln(x) \right]_{x_1}^{x_2} = - \left[\ln(w_A - w_A^*) \right]_{w_{Ac}}^{w_{Ae}} = \ln \frac{w_{Ac} - w_A^*}{w_{Ae} - w_A^*}$

②+③

$$\frac{\phi_A^I \cdot x \cdot a_{c1}}{W_{Ac} - W_A^*} \cdot \left[\tau_2 - \frac{0.7805}{\phi_A^I \cdot x \cdot a_{c1}} \right] = u \frac{W_{Ac} - W_A^*}{W_{Ac} - W_A^*}$$

$$\frac{\phi_A^I \cdot x \cdot a_{c1}}{W_{Ac} - W_A^*} \tau_2 - \frac{0.7805}{W_{Ac} - W_A^*} = u \frac{W_{Ac} - W_A^*}{W_{Ac} - W_A^*}$$

$$\tau_2 = \left[u \frac{W_{Ac} - W_A^*}{W_{Ac} - W_A^*} + \frac{0.7805}{W_{Ac} - W_A^*} \right] \cdot \frac{W_{Ac} - W_A^*}{\phi_A^I \cdot x \cdot a_{c1}} \quad \left(\begin{array}{l} \text{doba sušen} \\ \text{I+II. obdobi} \end{array} \right)$$

①

$$\tau_1 = \frac{0.572}{\phi_A^I \cdot a_{c1}}$$

$$\left[u \frac{W_{Ac} - W_A^*}{W_{Ac} - W_A^*} + \frac{0.7805}{W_{Ac} - W_A^*} \right] \cdot \frac{W_{Ac} - W_A^*}{x} = 0.572$$

$$\left[u \frac{0.2195 - 0.03093}{0.1111 - 0.03093} + \frac{0.7805}{0.2195 - 0.03093} \right] \cdot \frac{0.2195 - 0.03093}{x} = 0.572$$

$$\left[u \cdot 2.3521 + 4.1390 \right] \cdot \frac{0.18857}{0.572} = x$$

$$x = \underline{\underline{1.646}}$$

$$S_2 = S_1 \cdot x = 15 \cdot 1.646 = 24.697 \text{ m}^2$$

$$\Delta S = S_2 - S_1 = 24.7 - 15 = \underline{\underline{9.7 \text{ m}^2}}$$