$T : V \to V \qquad T^n = 0$

$u_1, T(u_1), \ldots$

$u_2, \ldots, T^{a_2 - 1}(u_\ell)$

<u>2.6.</u> $\operatorname{Ker}(\varphi - \lambda\, id_V) \subseteq \operatorname{Ker}((\varphi - \lambda\, id_V)^2)$

$\subseteq \dots \subseteq \operatorname{Ker}((\varphi - \lambda\, id_V)^N) = \operatorname{Ker}((\varphi - \lambda\, id_V)^{N+1})$

$\dim V = \dim \operatorname{Ker}((\varphi - \lambda\, id_V)^N) + \dim \overline{\operatorname{Im} - \| -}$

$\| $

$\dim[\operatorname{Ker}((\varphi - \lambda\, id)^N) \oplus \overline{\operatorname{Im} - \| -}]$

$$\underline{\varphi \circ (\varphi - \lambda \, id_V)} = \varphi \circ \varphi - \lambda \, \varphi \circ id_V$$

$$= (\varphi \circ \varphi - \lambda \, id_V \circ \varphi)$$

$$= \underline{(\varphi - \lambda \, id_V) \circ \varphi}$$

$$u \in \operatorname{Ker}(\varphi - \lambda \, id_V)^n \overset{?}{\Longrightarrow} \varphi(u) \in \operatorname{Ker} -\|-$$

$$(\varphi - \lambda \, id_V)^n (u) = 0 \overset{?}{\Longrightarrow} (\varphi - \lambda \, id_V)^n (\varphi(u)) = 0$$

$$(\varphi - \lambda \mathrm{id}_V)^N(\varphi(u)) = \ldots$$

$$\ldots = \varphi\big(\underbrace{(\varphi - \lambda \mathrm{id}_V)^N(u)}_{0}\big) = \varphi(0)$$

$$= 0$$

$$v \in \mathrm{Im}(\varphi - \lambda \mathrm{id}_V)^N \overset{?}{\Rightarrow} \varphi(v) \in \mathrm{Im} \text{ '' }$$

$\exists u \in V \quad v = (\varphi - \lambda\, id_V)^N (u)$

$\varphi(v) = \left(\varphi \circ (\varphi - \lambda\, id_V)^N\right)(u) =$

$= \ldots\ldots = (\varphi - \lambda\, id_V)^N \left(\varphi(u)\right)$

$\Rightarrow \varphi(v) \in \operatorname{Im}(\varphi - \lambda\, id_V)^N$

$$T = \varphi - \lambda\, id_V$$

$$\mathrm{Ker}(\varphi - \lambda\, id_V)^{p_1}$$

$$T(\underbrace{\mathrm{Ker}(\varphi - \lambda\, id_V)^{p_1}}_{u \in}) \qquad \Rightarrow \qquad T^{p_1}(u) = 0$$

SPLNĚNY PŘEDP.

WILDON.

$$\begin{pmatrix} \lambda & 1 & & \\ & \lambda & \ddots & \\ & & \ddots & 1 \\ & & & \lambda \end{pmatrix} = (\varphi)_{\alpha,\alpha} \qquad (\varphi(u_1))_\alpha = \begin{pmatrix} \lambda \\ \vdots \\ 0 \end{pmatrix}$$

$k \times k$

$$\varphi(u_1) = \lambda u_1$$

$$(u_1, \dots, u_k) = \alpha \qquad (\varphi(u_2))_\alpha = \begin{pmatrix} 1 \\ \lambda \\ 0 \end{pmatrix}$$

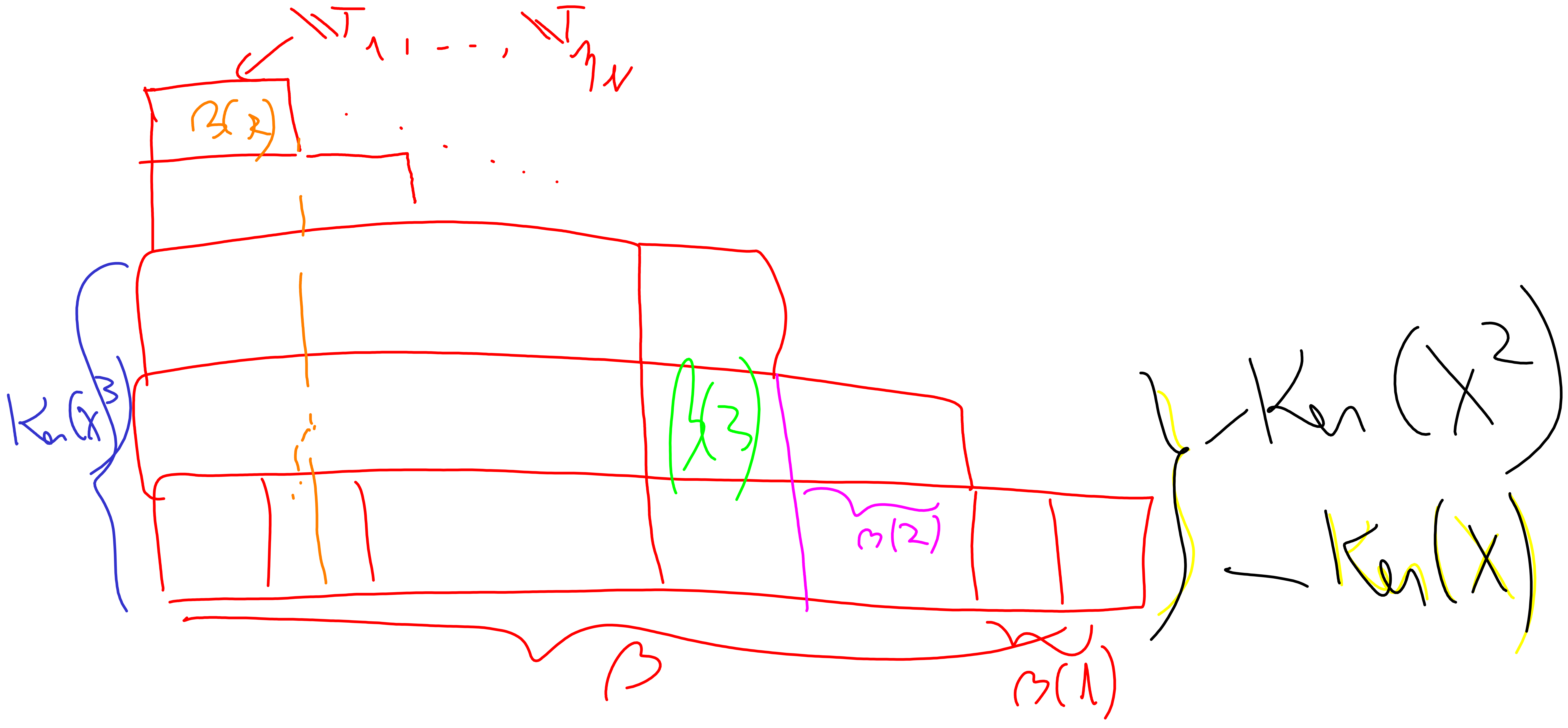
$$\varphi(u_2) = 1 \cdot u_1 + \lambda u_2 \qquad (\varphi - \lambda\, id)(u_2) = u_1$$

$X = \varphi - \lambda\, id_{U}$, $U = \operatorname{Ker}(\varphi - \lambda\, id_V)^n$

β počet všech zobrazení.

$\beta(\ell)$ počet JB typu $\underline{\ell \times \ell}$, $\underline{\underline{\ell \leq n}}$.

$\beta = \dim \operatorname{Ker} X$



$\mathbb{T}_1, \ldots, \mathbb{T}_{n_N}$
$B(r)$
$\lambda(3)$
$m(2)$
$\mathrm{Ker}(X^3)$
$\mathrm{Ker}(X^2)$
$\mathrm{Ker}(X)$
B
$m(1)$

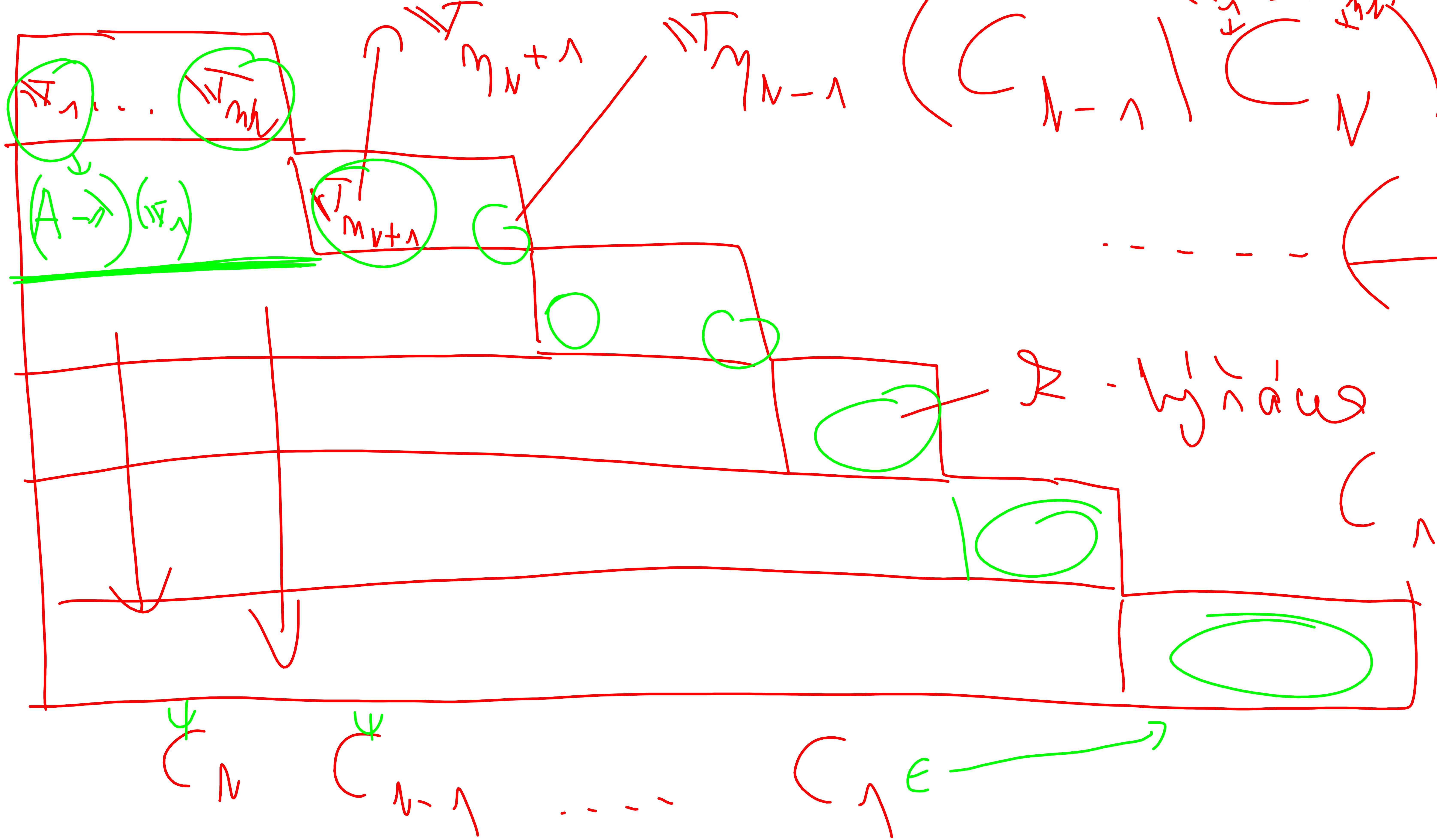
λ v.p. A

$A_\lambda = A - \lambda I$

$A_\lambda \sim \boxed{B_1}$, $A_\lambda^2 \sim B_2$, $\dots$,

$A_\lambda^N \sim B_N$, $A_\lambda^{N+1} \sim B_{N+1}$

$$\begin{array}{ccc} B_1 & \cdots & C_1 \\ B_2 & \cdots & C_2 \\ \vdots & & \\ B_N & \cdots & C_N \end{array}$$



$\mathbb{T}_{m_{n-1}}$ $(C_{n-1} \mid C_n)^{\sim}$

R - wyniana

$C_n \hookrightarrow \mathrm{Ker}(A \twoheadrightarrow \mathbb{T})$

$$\left(\begin{matrix} v_1 & \cdots & v_n \\ (A-\lambda\,\mathrm{id})(v_1) & \cdots & (A-\lambda\,\mathrm{id})(v_n) \\ C_{n-2} & & \end{matrix}\right) \Big| \; \underline{\underline{C_{n-1}}}$$