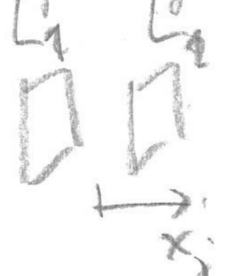

$$L_1^j:(t_1,\dots,\cancel{t_j},\dots,t_k)\mapsto Q(t_1,\dots,a_j,\dots,t_k)$$

$$L_2^j:(t_1,\dots,\cancel{t_j},\dots,t_k)\mapsto Q(t_1,\dots,b_j,\dots,t_k)$$

$$\Omega = \sum_{1\le i_1<i_2<\dots<i_{k-1}\le N} \tilde{F}_{i_1,\dots,i_{k-1}}\, dx_{i_1}\wedge\dots\wedge dx_{i_{k-1}}$$

$$\int_{L_1^j}\Omega = \int_{t_1=a_1}^{b_1}\dots\cancel{\int_{t_j=a_j}^{b_j}}\dots\int_{t_k=a_k}^{b_k} dt_1\dots\cancel{dt_j}\dots dt_k$$

$$\left\langle \tilde{F}(Q(t_1,\dots,a_j,\dots,t_k))\,\middle|\,\frac{\partial Q}{\partial t_1}\wedge\dots\cancel{\frac{\partial Q}{\partial t_j}}\dots\wedge\frac{\partial Q}{\partial t_k}\right\rangle$$

ugy $\int_{L_j^2}\Omega$ b_j helyett a_j-vel

$$\int_{L_2^j}\Omega-\int_{L_1^j}\Omega = \int_{t_1=a_1}^{b_1}\dots\int_{t_k=a_k}^{b_k} \frac{\partial}{\partial t_j}\left\langle \tilde{F}(Q)\,\middle|\,\frac{\partial Q}{\partial t_1}\wedge\dots\cancel{\frac{\partial Q}{\partial t_j}}\dots\wedge\frac{\partial Q}{\partial t_k}\right\rangle$$

$$dt_1\dots dt_k$$

$$\frac{\partial}{\partial t_j}\left\langle \tilde{F}(Q)\,\middle|\,\frac{\partial Q}{\partial t_1}\wedge\dots\cancel{\frac{\partial Q}{\partial t_j}}\dots\wedge\frac{\partial Q}{\partial t_k}\right\rangle =$$

$$=\left\langle \frac{\partial \tilde{F}(Q)}{\partial t_j}\,\middle|\,\frac{\partial Q}{\partial t_1}\wedge\dots\cancel{\frac{\partial Q}{\partial t_j}}\dots\wedge\frac{\partial Q}{\partial t_k}\right\rangle + \left\langle \tilde{F}(Q)\,\middle|\,\frac{\partial}{\partial t_j}\frac{\partial Q}{\partial t_1}\wedge\dots\cancel{\frac{\partial Q}{\partial t_j}}\dots\wedge\frac{\partial Q}{\partial t_k}\right\rangle$$

$$\frac{\partial \tilde F(Q)}{\partial t_j} = \frac{\partial F(Q)}{\partial x_1}\frac{\partial Q_1}{\partial t_j} + \frac{\partial F(Q)}{\partial x_2}\frac{\partial Q_2}{\partial t_j} + \dots + \frac{\partial F(Q)}{\partial x_N}\frac{\partial Q_N}{\partial t_j}$$

$$\frac{\partial}{\partial t_j}\frac{\partial Q}{\partial t_1}\wedge \dots \left|\cancel{\frac{\partial Q}{\partial t_j}}\right| \dots \wedge \frac{\partial Q}{\partial t_k} \underset{\uparrow}{=} \sum_{\substack{l=1\\ l\neq j}}^{k} \frac{\partial Q}{\partial t_1}\wedge \dots \underbrace{\left|\frac{\partial^2 Q}{\partial t_j \partial t_l}\right|}_{l\text{-ik}} \wedge \left|\cancel{\frac{\partial Q}{\partial t_j}}\right| \dots \wedge \frac{\partial Q}{\partial t_k}$$

$\forall$ tényező 1-szer $\frac{\partial}{\partial t_j}$ $\wedge$ többi

$$\sum_{j=1}^{k} (-1)^{j-1} \int_{L_j^2} - \int_{L_j^1} \Omega \text{ -ből} \quad \text{EZEK KIESNEK}$$

$$\sum_{j=1}^{k} (-1)^{j-1} \frac{\partial Q}{\partial t_1}\wedge \dots \wedge \underbrace{\left|\frac{\partial^2 Q}{\partial t_j \partial t_l}\right|}_{l\text{-ik}} \wedge \dots \wedge \underbrace{\left|\cancel{\frac{\partial Q}{\partial t_j}}\right|}_{j\text{-ik}} \wedge \dots \wedge \frac{\partial Q}{\partial t_k} =$$

$$= \sum_{1\le l<j\le k} \Bigg[(-1)^{j-1} \frac{\partial Q}{\partial t_1}\wedge \dots \wedge \underbrace{\left|\frac{\partial^2 Q}{\partial_j \partial t_l}\right|}_{l} \wedge \dots \wedge \underbrace{\left|\cancel{\frac{\partial Q}{\partial t_j}}\right|}_{j} \wedge \dots \wedge \frac{\partial Q}{\partial t_k} +$$

$$+ (-1)^{l-1} \frac{\partial Q}{\partial t_1}\wedge \dots \wedge \left|\cancel{\frac{\partial Q}{\partial t_l}}\right| \wedge \dots \wedge \underbrace{\left|\frac{\partial^2 Q}{\partial t_l \partial t_j}\right|}_{=\frac{\partial^2 Q}{\partial t_j \partial t_l}} \wedge \dots \wedge \frac{\partial Q}{\partial t_k} \Bigg] =$$

$\overset{j-l}{\longleftrightarrow}$ HELY-

$$= \sum_{1\le l<j\le k} \underbrace{\left\{ (-1)^{j-1} - (-1)^{l-1} \cdot (-1)^{j-l} \right\}}_{0} \overset{\text{HELY-CSERE}}{} \frac{\partial Q}{\partial t_1}\wedge \dots \wedge \underbrace{\left|\frac{\partial^2 Q}{\partial_j \partial t_l}\right|}_{l} \wedge \dots \left|\cancel{\frac{\partial Q}{\partial t_j}}\right| \wedge \frac{\partial Q}{\partial t_k}$$

$$= \underline{0}$$