

$$T_\epsilon(\psi dx_1 \wedge \dots \wedge dx_{n-1}) = \sum_I (T_I)_\epsilon(\psi) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-1}$$

$$= (T_I)_\epsilon(\psi) (-1)^{(n-1)q} = (-1)^{q(n-1)} T_I(\psi_\epsilon) \rightarrow (-1)^{q(n-1)} T_I(\psi) \text{ by P325,}$$

$$as \epsilon \rightarrow 0. \Rightarrow A_s \epsilon \rightarrow 0, T_\epsilon(\varphi) \rightarrow T(\varphi).$$

$$\text{Let } \varphi \in A_c^{n-q-1}(\mathbb{R}^n) \Rightarrow \text{Assume } \varphi = \psi dx_1 \wedge \dots \wedge dx_{n-q-1}.$$

$$(dT_\epsilon)(\varphi) = (-1)^{q+1} T_\epsilon(d\varphi)$$

$$= (-1)^{q+1} T_\epsilon(d\psi \wedge dx_1 \wedge \dots \wedge dx_{n-q-1}).$$

$$= (-1)^{q+1} T_\epsilon\left(\sum_{j=n-q}^n \frac{\partial \psi}{\partial x_j} dx_j \wedge \dots \wedge dx_{n-q-1}\right)$$

$$= (-1)^{q+1} T_\epsilon\left(\frac{\partial \psi}{\partial x_j} dx_1 \wedge \dots \wedge dx_{n-q-1} \wedge dx_j\right) (-1)^{n-q-1}$$

$$= (-1)^n (T_I)_\epsilon\left(\frac{\partial \psi}{\partial x_j}\right) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-q-1} \wedge dx_j \dots \textcircled{1}$$

$$d(T_\epsilon) = \sum_{\#I=q} d(T_I)_\epsilon dx_I = \sum_I \frac{\partial}{\partial x_j} (T_I)_\epsilon dx_j \wedge dx_I$$

$$\Rightarrow (dT_\epsilon)(\varphi) = (dT_\epsilon)(\psi dx_1 \wedge \dots \wedge dx_{n-q-1})$$

$$= \sum \frac{\partial}{\partial x_i} ((T_I)_\epsilon(\psi) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-q-1})$$

$$= \sum \left(\frac{\partial}{\partial x_i} (T_I)_\epsilon\right)(\psi) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-q-1} \wedge dx_i (-1)^{n-1}$$

$$= \sum \left(\frac{\partial}{\partial x_i} T_I\right)_\epsilon(\psi) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-q-1} \wedge dx_i (-1)^{n-1}$$

$$= \sum (-1) (T_I)_\epsilon\left(\frac{\partial \psi}{\partial x_i}\right) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-q-1} \wedge dx_i (-1)^{n-1}$$

$$= \sum (T_I)_\epsilon\left(\frac{\partial \psi}{\partial x_i}\right) dx_I \wedge dx_1 \wedge \dots \wedge dx_{n-q-1} \wedge dx_i (-1)^n \dots \textcircled{2}$$

$$\Rightarrow \textcircled{1} = \textcircled{2} \Rightarrow dT_\epsilon = d(T_\epsilon).$$

□