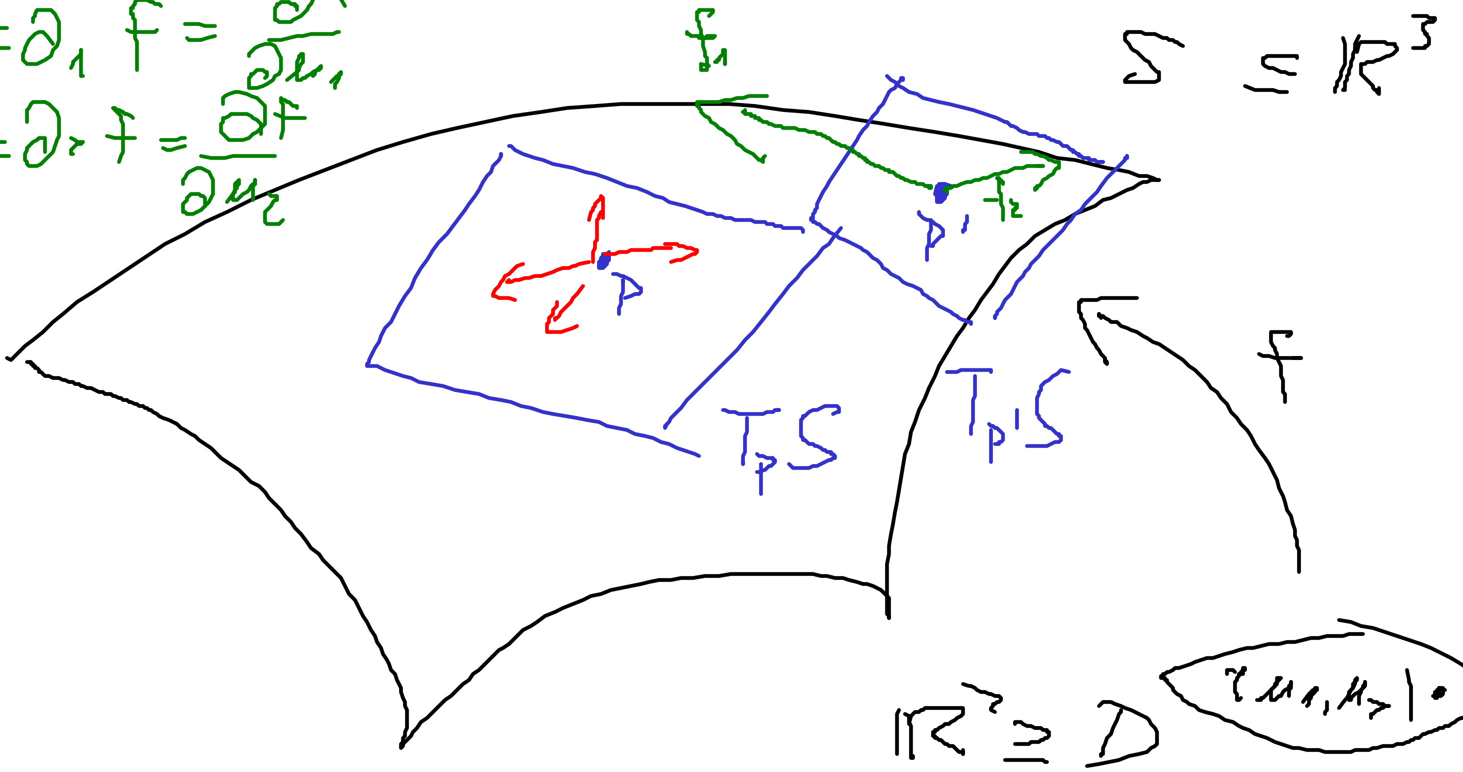
$f_1 = \partial_1 f = \frac{\partial f}{\partial u_1}$

$f_2 = \partial_2 f = \frac{\partial f}{\partial u_2}$



$(\, , \,)$ skalární součin na $\mathbb{R}^3$

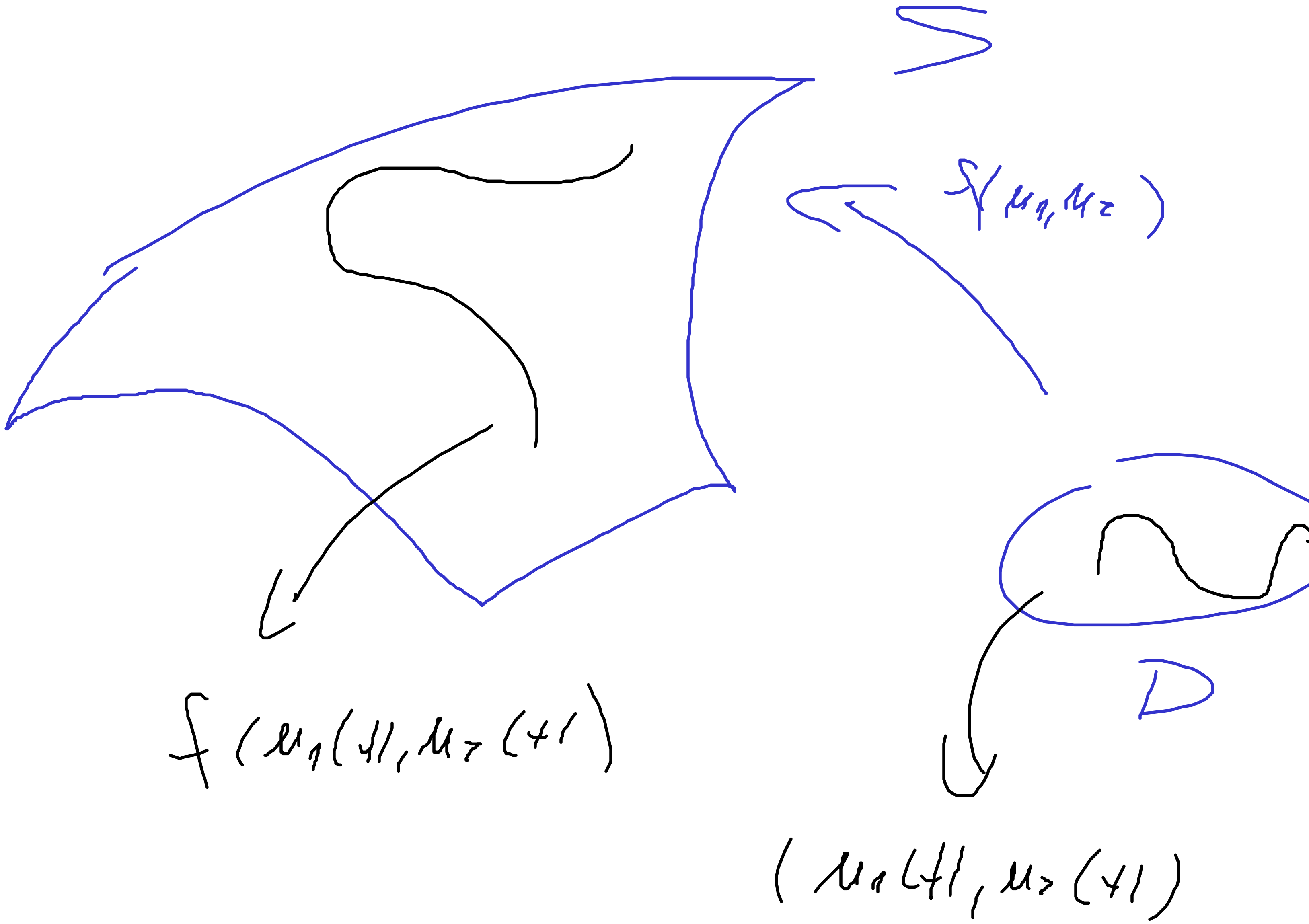
zúžení } na T_pS

$\Downarrow$

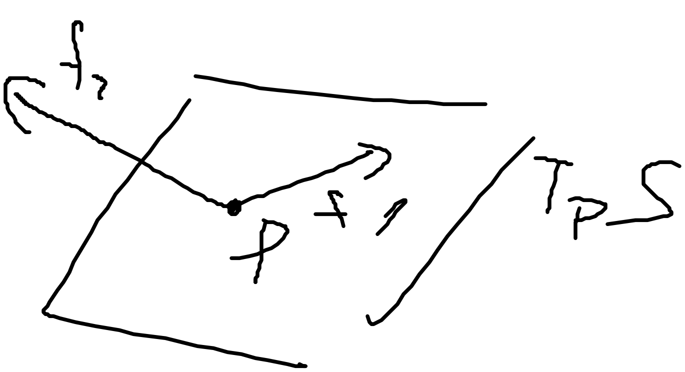
první základní forma
(bilineární forma)

koeficienty v bázi f_1, f_2
budou $(f_i, f_j) \Rightarrow$ matice

$$\begin{pmatrix} (f_1, f_1) & (f_1, f_2) \\ (f_2, f_1) & (f_2, f_2) \end{pmatrix}$$



$$\frac{df}{dt} = f_1 \cdot \frac{du_1}{dt} + f_2 \frac{du_2}{dt}$$



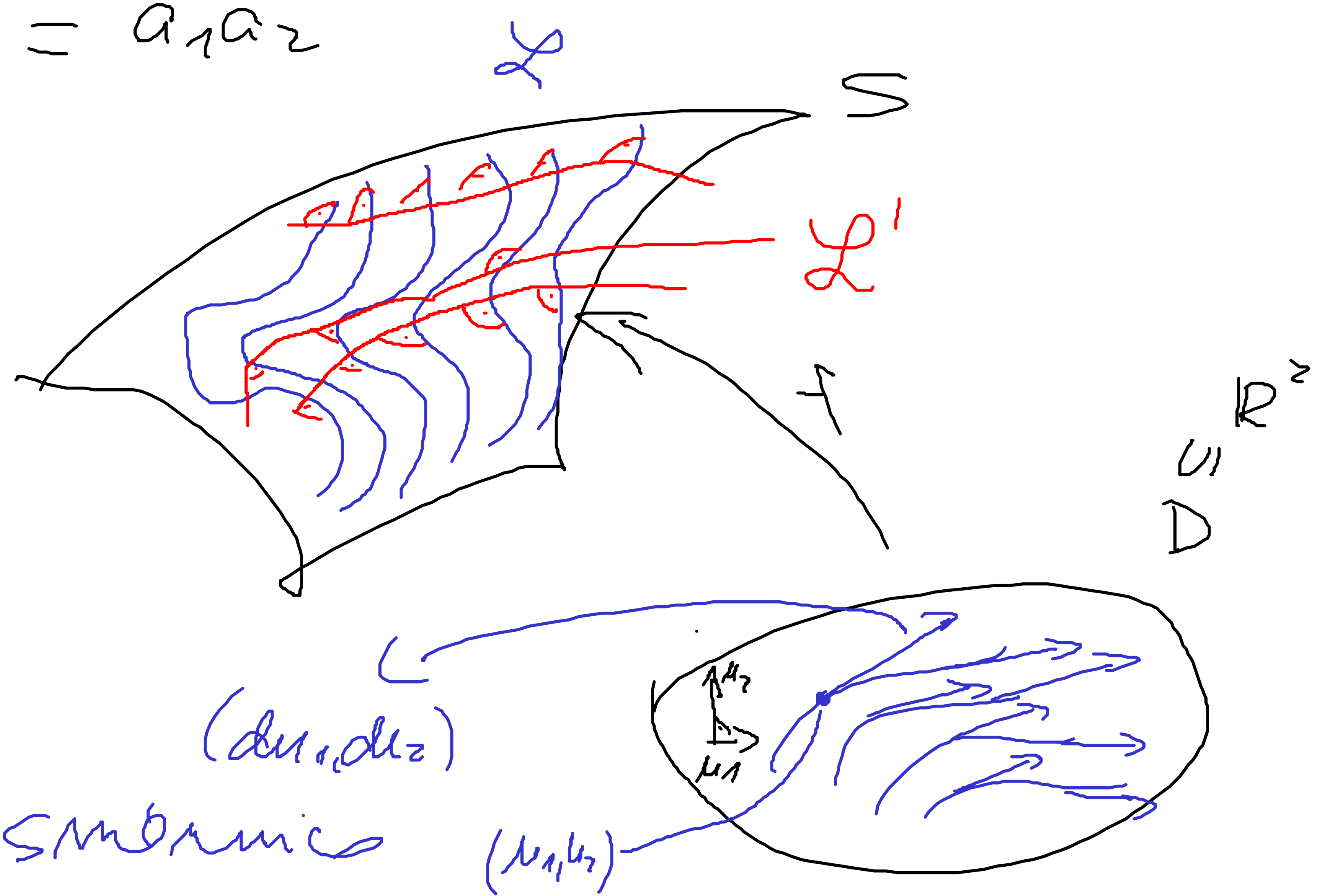
f_1, f_2 báze T_pS

du_1, du_2 duální báze na $(T_pS)^*$

lineární forma

$$du_1^2(a_1 f_1 + a_2 f_2) = \left(du_1(a_1 f_1 + a_2 f_2)\right)^2 = a_1^2$$

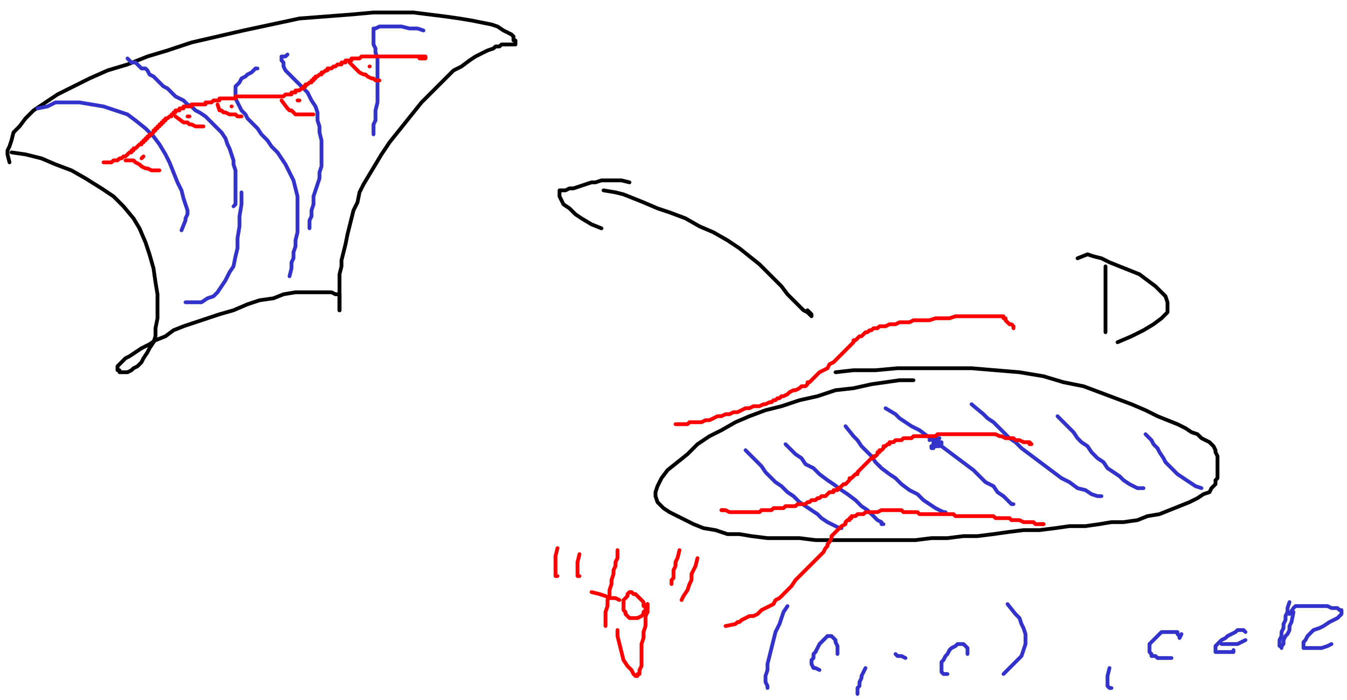
$$(du_1 du_2)(a_1 f_1 + a_2 f_2) = \left(du_1(a_1 f_1 + a_2 f_2)\right)\left(du_2(a_1 f_1 + a_2 f_2)\right) = a_1 a_2$$



je $L(u_1, u_2) := \frac{du_2}{du_1}$

Pr 6.5.

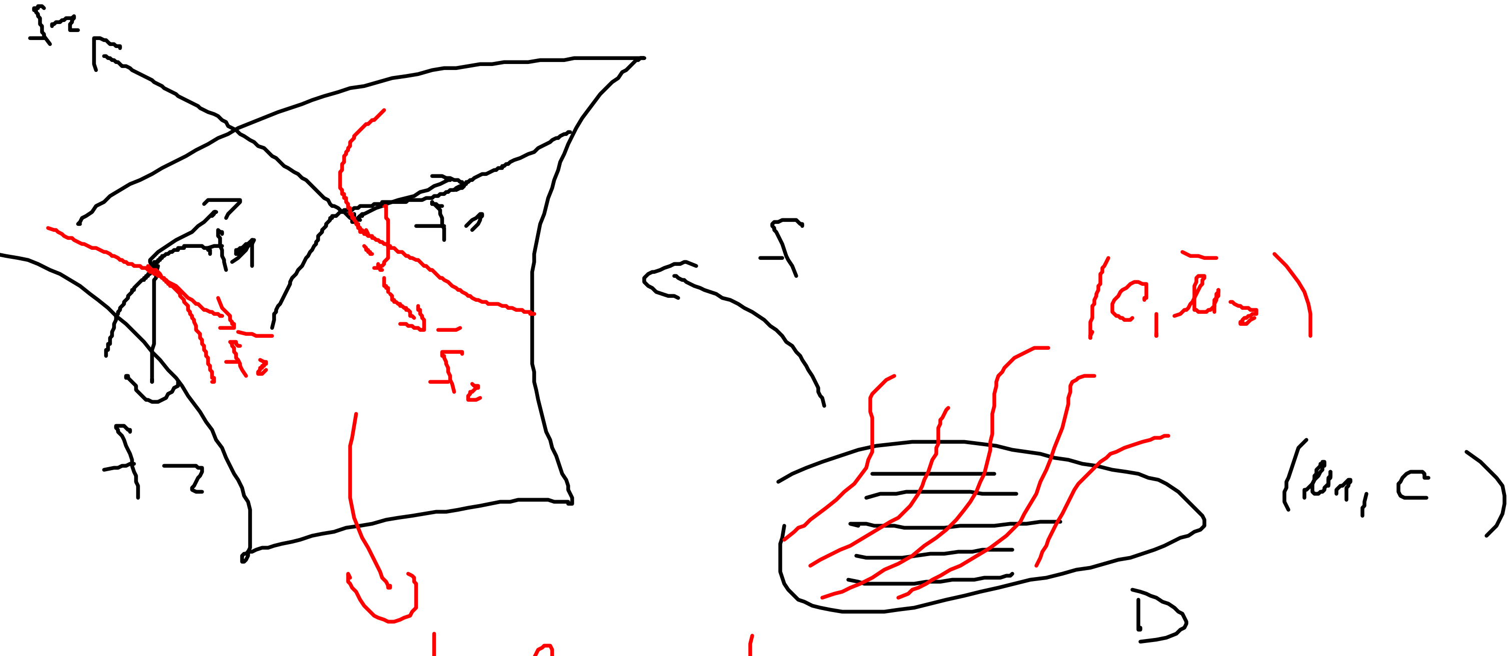
Strag



6.10 Matice Φ_1 v bazi f_1, f_2 je
$$\begin{pmatrix} g_{11} & g_{12} \\ g_{12} & g_{22} \end{pmatrix}$$

pozitivně definitní

- $g_{11} > 0$ $\quad g_{11} = \|f_1\|^2$
- $\det = g_{11} g_{22} - g_{12}^2 > 0$



velmost
na f_1 znamená spočíst
ortogonální trajektorii
k vrstvě přímek
určující f_1

$$(u_1, \bar{u}_2) = (u_1, \varphi(u_1, u_2))$$