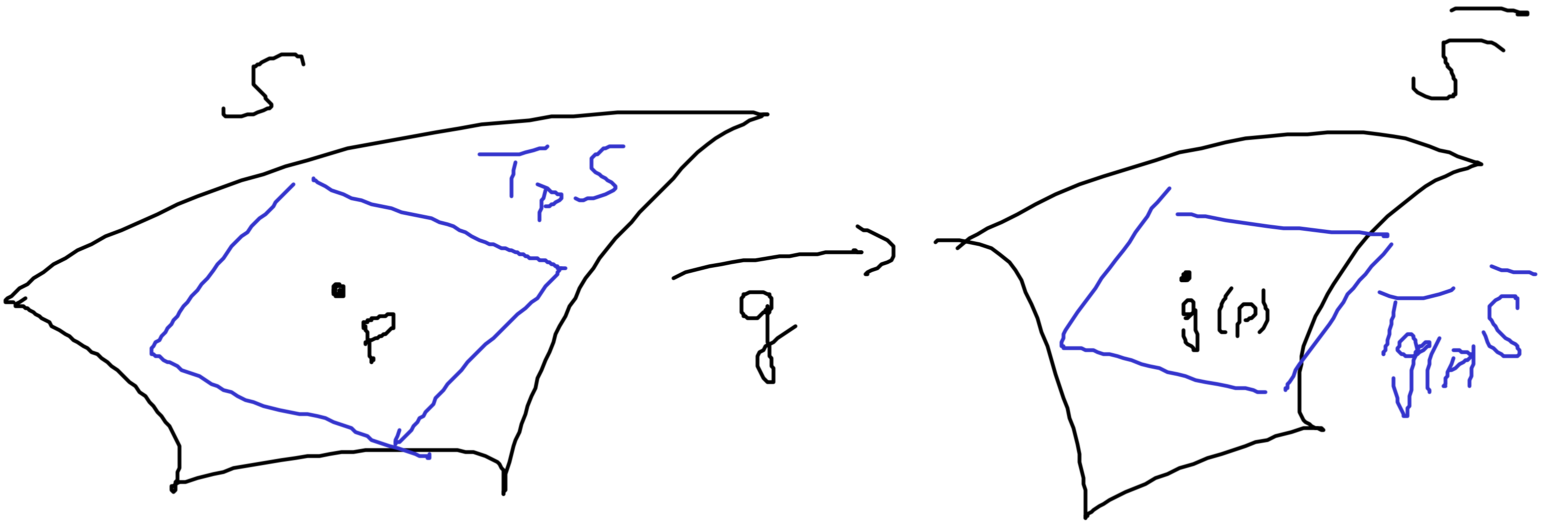


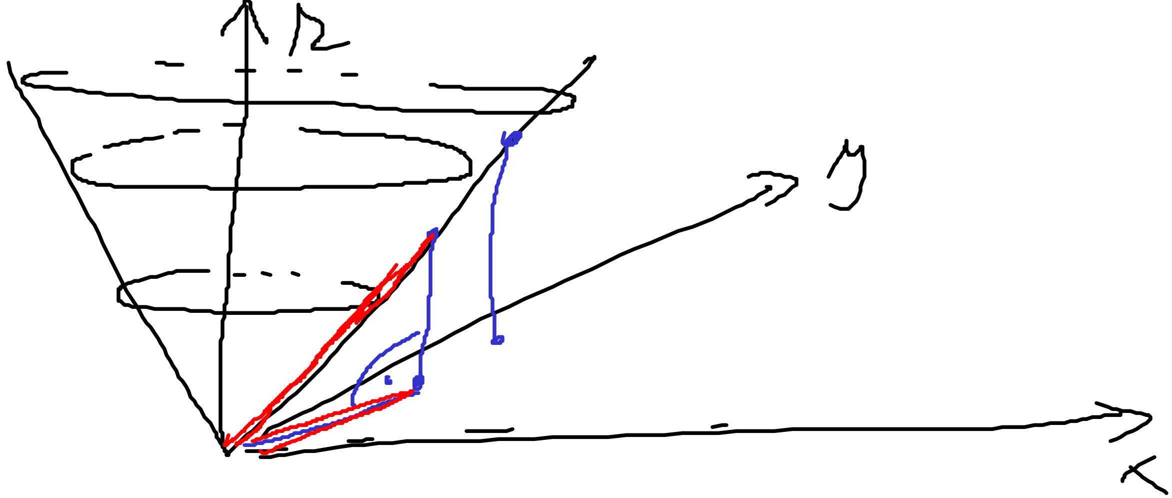
$$g : S \to \bar{S}$$

$$T_p g : T_p S \to T_{g(p)} \bar{S}$$

$\hookrightarrow$ lineární zobrazení

izometrie $\overset{df}{\iff}$ $T_p g$ zachovává skálární součin $\forall p \in S$

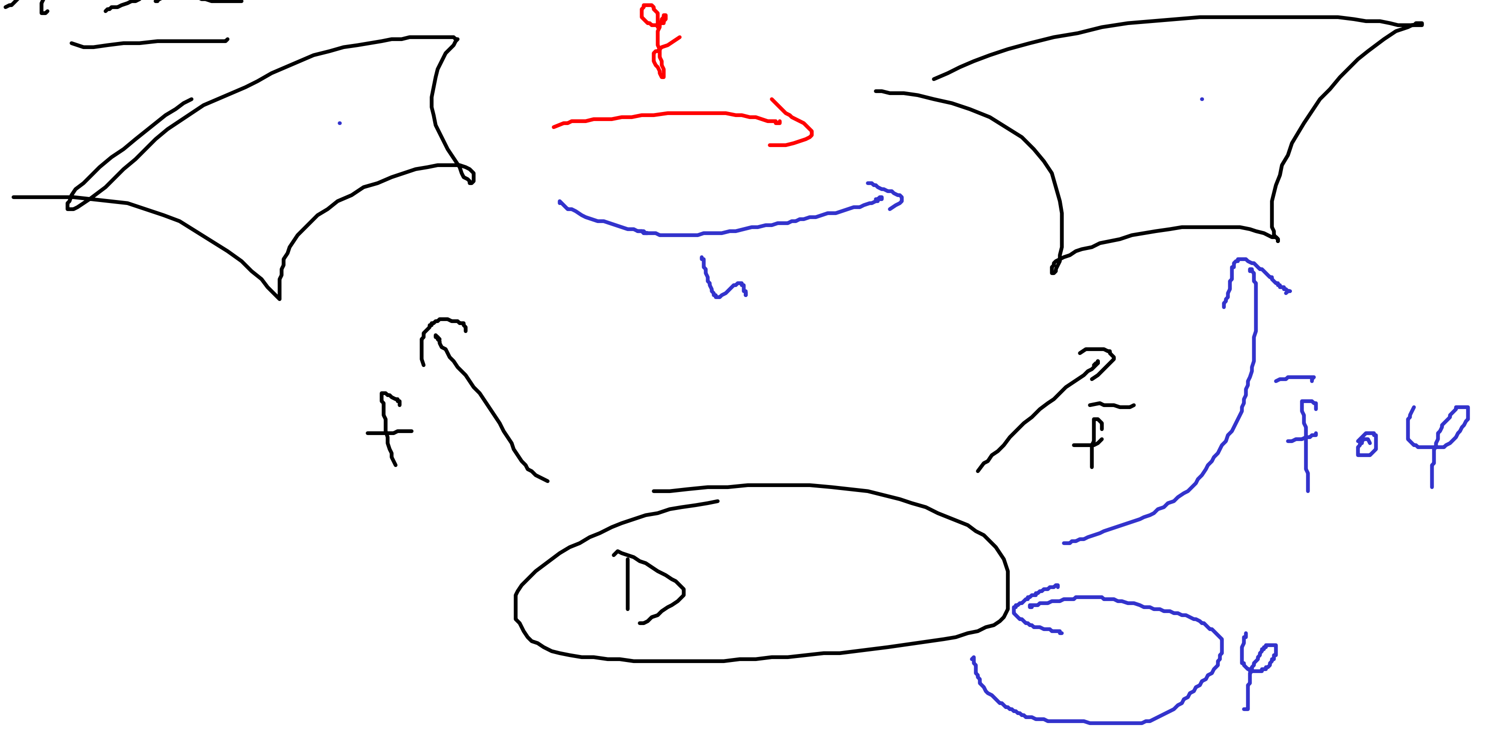
13.1



není izometrie, protože nezachovává délky křivek

13.2

katenoid   helikoid



g určené parametrizací
f, f̄ není izometrie

h určené parametrizací
f, f̄∘φ bude izometrie

$$\varphi(u,v) = (\sinh u, v)$$

↳ reparametrizacija

$$\varphi' = \begin{pmatrix} \cosh u & 0 \\ 0 & 1 \end{pmatrix}$$

$$J(\varphi) = \cosh u > 0$$

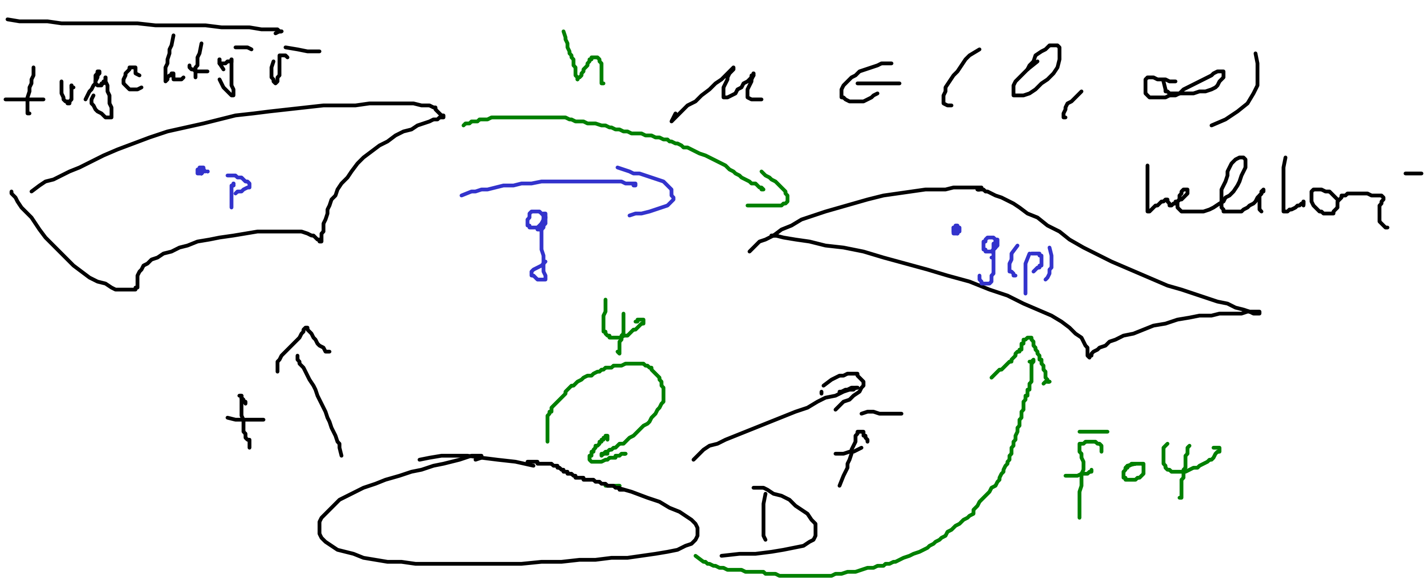
$$(f\circ\varphi)(u,v) = (\sinh u\cos v, \sinh u \sin v, v)$$

$$(f\circ\varphi)_1 = (\cosh u\cos v, \cosh u\sin v, 0)$$

$$(f\circ\varphi)_2 = (-\sinh u\sin v, \sinh u\cos v, 1)$$

13.3 $D: \quad v \in (0, 2\pi)$

$\quad\quad\quad u \in (0, \infty)$



$K_p = K_{g(p)}$

Gauss. křivost tvrchlyre

G. křivost koliverich

$D \subseteq \mathbb{R}^2$

$\varphi : D \to D$

$\varphi(u,v) = (\tilde{u}, \tilde{v})$,

kde $\boxed{\begin{array}{l} \tilde{u} = \tilde{u}(u,v) \\ \tilde{v} = \tilde{v}(u,v) \end{array}}$

$(\bar{f} \circ \varphi)(u,v) \rightsquigarrow \underbrace{(\bar{f}\circ\varphi)_1, (\bar{f}\circ\varphi)_2}_{}$

koeficienty 1. . základní formy atd.

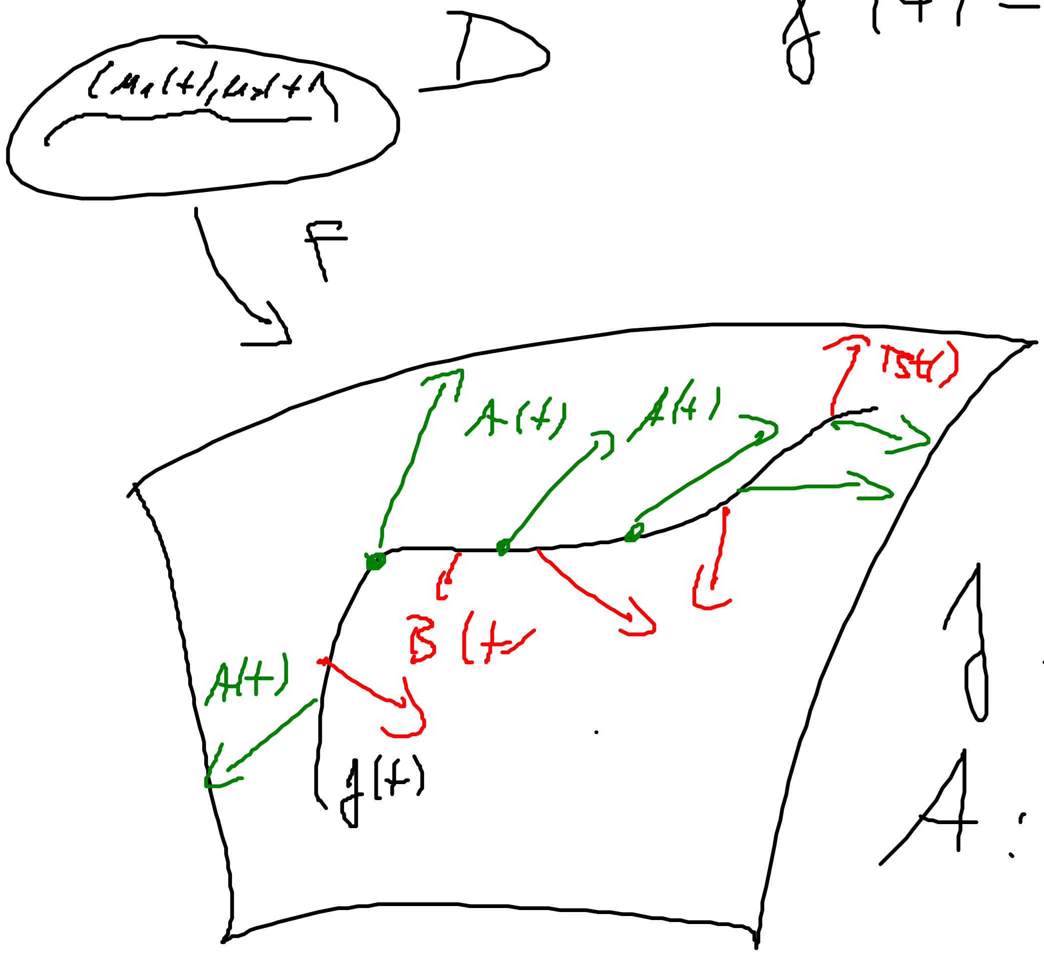
$\tilde{u} = \pm u$ (z Gaussovy křivosti)

$\tilde{v} = \tilde{v}(u,v) = \varphi(u,v)$

$$\Psi(u,v) = (\pm u, \varphi(u,v))$$

$$\rightsquigarrow \bar{f} \circ \Psi$$

$$\gamma(t) = f(u_1(t), u_2(t))$$



S

$$\gamma : I \to S$$

$$A : I \to V$$

$$A(t) \in T_{\gamma(t)} S \subseteq V$$

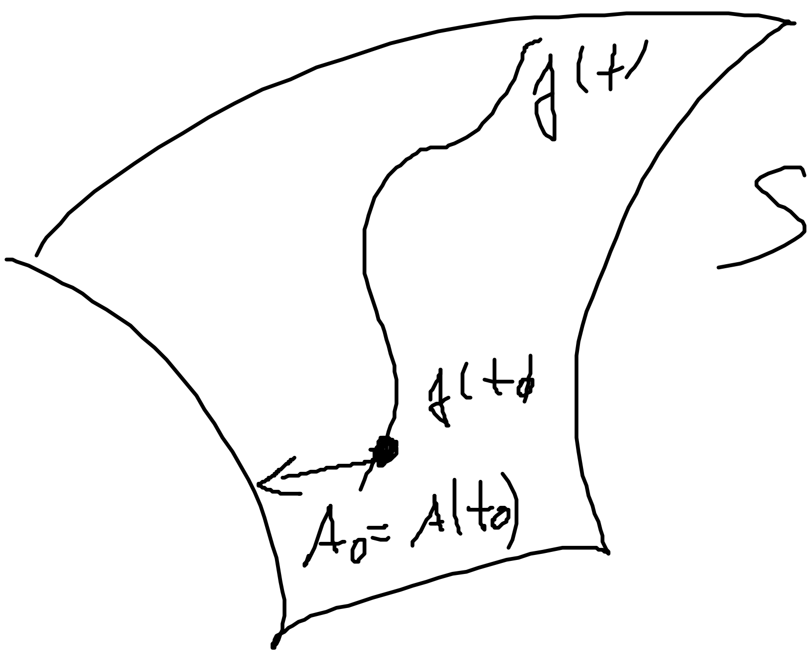
↳ zaměření E_3

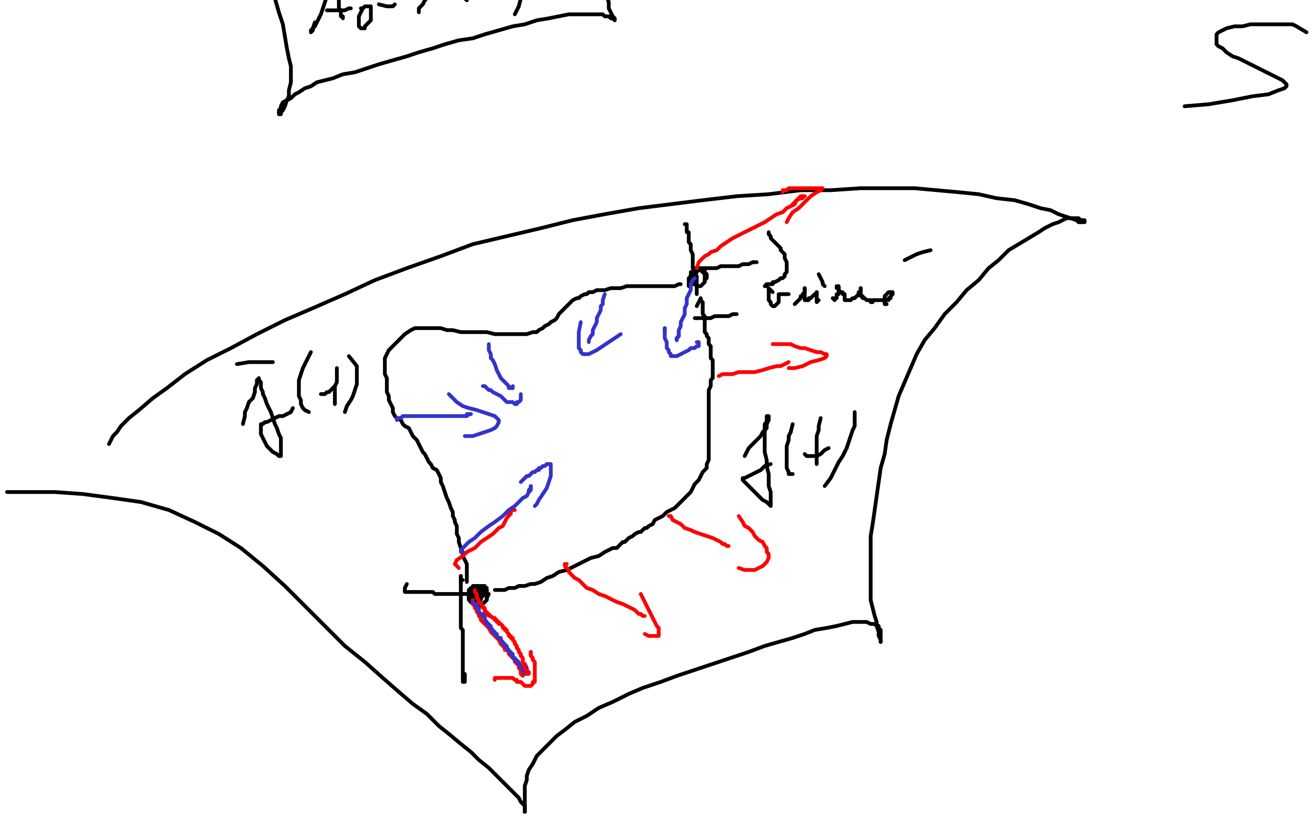
$$\frac{dA}{dt} \notin T_{\gamma(t)} S$$

↳ obecně

Průmět: $\frac{dA(t)}{dt} \in V$, ale

obecně $\frac{dA(t)}{dt}$ neleží v $T_{g(t)}S$





$$\frac{d\, U_i(\varphi(\tau))}{d\tau} = \frac{d\, U(\varphi(\tau))}{dt} \cdot \frac{d\varphi}{d\tau}$$

$$\frac{d\, u_i(\varphi(\tau))}{d\tau} = \frac{d\, e_i(\varphi(\tau))}{dt} \cdot \frac{d\varphi}{d\tau}$$