

### Aufgabe

Let  $(M, g)$  be a simply connected Riemannian manifold, and let  $R$  be the corresponding curvature tensor with  $R \equiv 0$ . Consider  $p \in M$ ,  $v_0 \in T_p M$ , and  $V \in \Gamma(TM)$  defined by

$$V(q) = P_{0,1}^{\gamma_q} v_0$$

for a smooth curve from  $p$  to  $q \in M$  (cf. 4.6 Corollary). Does  $V(q)$  depend on  $\gamma_q$ ? Show that  $V$  is parallel, i.e.,  $\nabla_X V = 0$  for every  $X \in \Gamma(TM)$ .