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***A construction of a connection on  $GY \rightarrow Y$  from a connection on  $Y \rightarrow M$  by means of classical linear connections on  $M$  and  $Y$***

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**Abstract:** Let  $G$  be a bundle functor of order  $(r, s, q)$ ,  $s \geq r \leq q$ , on the category  $\mathcal{FM}_{m,n}$  of  $(m, n)$ -dimensional fibered manifolds and local fibered diffeomorphisms. Given a general connection  $\Gamma$  on an  $\mathcal{FM}_{m,n}$ -object  $Y \rightarrow M$  we construct a general connection  $\mathcal{G}(\Gamma, \lambda, \Lambda)$  on  $GY \rightarrow Y$  by means of an auxiliary  $q$ -th order linear connection  $\lambda$  on  $M$  and an  $s$ -th order linear connection  $\Lambda$  on  $Y$ . Then we construct a general connection  $\mathcal{G}(\Gamma, \nabla_1, \nabla_2)$  on  $GY \rightarrow Y$  by means of auxiliary classical linear connections  $\nabla_1$  on  $M$  and  $\nabla_2$  on  $Y$ . In the case  $G = J^1$  we determine all general connections  $\mathcal{D}(\Gamma, \nabla)$  on  $J^1Y \rightarrow Y$  from general connections  $\Gamma$  on  $Y \rightarrow M$  by means of torsion free projectable classical linear connections  $\nabla$  on  $Y$ .

**Keywords:** general connection, classical linear connection, bundle functor, natural operator

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