Generalizations of Frobenius’ Theorem on Manifolds and Subcartesian Spaces

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Abstract. Let $\mathcal{F}$ be a family of vector fields on a manifold or a subcartesian space spanning a distribution $D$. We prove that an orbit $O$ of $\mathcal{F}$ is an integral manifold of $D$ if $D$ is involutive on $O$ and it has constant rank on $O$. This result implies Frobenius’ theorem, and its various generalizations, on manifolds as well as on subcartesian spaces.