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**Autor:** Xavier, Frederico

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intervals. Here one should note that the solutions of (8) are independent of the choice of frames, since they uniquely solve (6). Furthermore, the sets  $\mathcal{O}_p$  are pairwise disjoint, by the uniqueness of solutions of initial value problems for ordinary differential equations with smooth coefficients. Hence,

$$M_1 \times \cdots \times M_k = \bigcup_{p \in f_1(M_1) \cap \cdots \cap f_k(M_k)} \mathcal{O}_p,$$

where, as observed, the sets  $\mathcal{O}_p$  are non-empty, open and pairwise disjoint. Connectedness of  $M_1 \times \cdots \times M_k$  now implies that there is only one such set, thus showing that  $f_1(M_1) \cap \cdots \cap f_k(M_k)$  reduces to a single point. This concludes the proof of Theorem 3.

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Frederico Xavier

Department of Mathematics  
University of Notre Dame  
Notre Dame IN 46556  
U. S. A.  
*e-mail*: xavier.1@nd.edu