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Non-Associative Local Lie Groups

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Abstract. A general method for constructing local Lie groups which are not contained in any global Lie group is described. These examples fail to satisfy the global associativity axiom which, by a theorem of Mal'cev, is necessary and sufficient for globalizability. Furthermore, we prove that every local Lie group can be characterized by such a covering construction, thereby generalizing Cartan's global version of the Third Fundamental Theorem of Lie.

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