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On definition of an admitted Lie group for functional differential equations

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Abstract

The manuscript is devoted to applications of group analysis to functional differential equations. It is given a definition of an admitted Lie group for such type of equations and some examples of applications of this definition are studied. The way for constructing an admitted Lie group is similar to the way developed for differential equations: first, one has to construct determining equations, then to split these equations with respect to arbitrary elements, and then to find the general solution of these equations. Particularly, for delay differential equations the process of splitting determining equations and solving them is similar to the case of differential equations. The proposed approach can also be applied for finding an equivalence group, contact and Lie–Bäcklund transformations.