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Strong Solutions of the Fuzzy Linear Systems

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We consider a fuzzy linear system with crisp coefficient matrix and with an arbitrary fuzzy number in parametric form on the right-hand side. It is known that the well-known existence and uniqueness theorem of a strong fuzzy solution is equivalent to the following: The coefficient matrix is the product of a permutation matrix and a diagonal matrix. This means that this theorem can be applicable only for a special form of linear systems, namely, only when the system consists of equations, each of which has exactly one variable. We prove an existence and uniqueness theorem, which can be use on more general systems. The necessary and sufficient conditions of the theorem are dependent on both the coefficient matrix and the right-hand side. This theorem is a generalization of the well-known existence and uniqueness theorem for the strong solution.

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