On the parameter-dependence of the solutions of functional differential equations with unbounded state-dependent delay II. The Kneser-theorem and some comparison theorems

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Abstract. In this paper the Kneser-theorem and some comparison theorems are proved for retarded functional differential equations with unbounded state-dependent delay using the upper-semicontinuity of the multivalued resolvent function. The results extends earlier works even for ODEs.

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1. Introduction and preliminaries

In [9] the upper-semicontinuity of the multivalued resolvent function of the initial value problem

\[ x'(t) = f(t, x(t), x(t - 
\tau(t, x(t, \mu))), \omega), \quad t \in [\sigma, b], \]
\[ x(t) = \phi(t - \sigma) \quad \text{if} \quad t \in [\sigma - r, \sigma], \]

was investigated. Using the results of that paper the Kneser-theorem and a comparison theorem will be established in stronger forms than the classical ones. The notations of [9] will be used. For more results on general theory and applications of state-dependent delay equations we refer to [4].

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