Asymptotic properties of one differential equation with unbounded delay

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This contribution deals with asymptotic behavior of solutions of a differential equation with unbounded delay. This equation includes as the special cases some equations which have been recently considered, for example the logistic equation with recruitment delays, which was considered by Gopalsamy. The purpose of this paper is the existence a solution of this equation which may be at \( t \to \infty \) represented by asymptotic series. To prove this results is used the modification of the Ważewski’s topological method.

The first Lyapunov’s method is often used to construct the solution of ordinary differential equations in the form of power–like series. Such a way is not possible here. First lefthand ends of existence intervals of partial sums tend to infinity and, secondly, if \( t_i \) does not happen, the partial sums need not converge uniformly.

The full text of the paper can be found on the attached CD-ROM.