A generalized Yorke condition for delayed population models

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Abstract. We show that the famous 3/2-stability theorem obtained fifty years ago by E. M. Wright for the delayed logistic equation can be extended to general scalar functional differential equations of the form

$$x'(t) = f(t, x_t),$$

where $f : [0, \infty) \times C([-\tau, 0]; \mathbb{R}) \to \mathbb{R}$ is a Carathédory function, and, as usual, x_t denotes the function in $C([-\tau, 0]; \mathbb{R})$ defined by $x_t(s) = x(t + s), -\tau \leq s \leq 0$. Our approach allows us to improve many previous stability conditions for both continuous and discrete delayed population models.