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CORRECTION

Correction to: A Nagumo-Type Uniqueness Criterion for a Differential Equation with Convolution

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Corrigendum

The space of functions for x and u in [1, Theorem 2.1] must be changed. That has no effect in the proof of the theorem. So, [1, Theorem 2.1] should read as follows:

Theorem 1.1 *Consider an* L^1 *kernel* $k : (0, \infty) \to \mathbb{R}$ *and suppose that there exists an* L^1 *kernel* $\kappa : (0, \infty) \to \mathbb{R}^+$ *such that* $(k * \kappa)(t) = 1$ *on* $[0, 1]$. *Moreover, let* $u : [0, 1] \to \mathbb{R}_0^+$ *be an absolutely continuous function* (*also denoted below by* $AC[0, 1]$) *such that* $u(0) = 0$, $u(t) > 0$ *for* $t \in (0, 1]$, *and* $(k * u')(t) > 0$ *on* $t \in (0, 1]$.

Suppose that the IVP

$$(k * x')(t) = f(t, x(t)),\ t \in (0, 1], \quad x(0) = 0, \tag{1.1}$$

where $f : [0, 1] \times \mathbb{R} \to \mathbb{R}$ *is continuous with* $\lim_{t\to 0^+} \frac{|f(t,x)|}{(k*u')(t)} = 0$ *uniformly in* $|x| \le 1$, *and*

$$|f(t, x)| \le \frac{(k * u')(t)}{u(t)} |x|, \quad t \in (0, 1],\ |x| \le 1, \tag{1.2}$$

has a solution $x \in AC[0, 1]$. *Then*, $x(t) = 0$ *on* $[0, 1]$.

Naturally, in [1, Example 2.3], the condition $k * u' \in C[0, 1]$ is not needed (though it is true) and the space of functions in the final sentence should be $AC[0, 1]$.

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Reference

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