ERRATA TO "CONVEXIFIABLE FUNCTIONS IN INTEGRAL CALCULUS"

Erratum

In the December 2005 issue of Glasnik Matematički in the article Convexifiable functions in integral calculus by Sanjo Zlobec, Glasnik Matematički 40(60) (2005), 241-247 some errors occurred due to misprint. The editors regret these errors. The errors are:

- on the line 20 of page 242 formula
  \[ \det V = (st)(t - \xi)(\xi - s) > 0 \]
  should read
  \[ \det V = (s - t)(t - \xi)(\xi - s) > 0 \]

- on the line 4 of page 243 formula
  \[ f(t) = f(c) + \frac{1}{2} \alpha(t^2c^2) + \int_c^t g(\xi)d\xi \]
  should read
  \[ f(t) = f(c) + \frac{1}{2} \alpha(t^2 - c^2) + \int_c^t g(\xi)d\xi \]

- on the line 4 of page 244 formula
  \[ \int_s^t \frac{f(\xi)}{t - s} d\xi \leq \frac{1}{2}[f(s) + f(t)] \frac{1}{12} \alpha(t^2s^2) \]
  should read
  \[ \int_s^t \frac{f(\xi)}{t - s} d\xi \leq \frac{1}{2}[f(s) + f(t)] - \frac{1}{12} \alpha(t - s)^2 \]

- on the line 23 of page 244 formula
  \[ f \left( \frac{1}{d - c} \int_c^d g(t)dt \right) \leq \frac{1}{d - c} \int_c^d f(g(t))dt + \frac{1}{2} \alpha R(c, d; g) \]
should read
\[
f \left( \frac{1}{d-c} \int_c^d g(t) \, dt \right) \leq \frac{1}{d-c} \int_c^d f(g(t)) \, dt + \frac{1}{2} \alpha R(c, d; g)
\]

Therefore the correct versions of Theorems are as follows:

**Theorem 2.2** (Explicit Representation of Convexifiable Function). Function f : I \to \mathbb{R} is convexifiable if, and only if, there exists a number \alpha such that
\[
f(t) = f(c) + \frac{1}{2} \alpha (t^2 - c^2) + \int_c^t g(\xi) \, d\xi
\]
where c, t \in I, c < t, and g = g(\cdot, \alpha) : I \to \mathbb{R} is a non-decreasing right-continuous function.

**Theorem 3.1** (Mean-Value Bound for Convexifiable Function; [8]). Consider a continuous convexifiable function f : \mathbb{R} \to \mathbb{R} with a convexifier \alpha on an open interval (a, b) \in \mathbb{R}. Then
\[
\int_s^t \frac{f(\xi)}{t-s} \, d\xi \leq \frac{1}{2} \left[ f(s) + f(t) \right] - \frac{1}{12} \alpha (t-s)^2
\]
for every a < s < t < b.

**Theorem 3.3** (Integral Mean-Value Bound for Composite Convexifiable Function). Let f : (a, b) \to \mathbb{R} be convexifiable with a convexifier \alpha and let g : [c, d] \to (a, b) be continuous. Then
\[
f \left( \frac{1}{d-c} \int_c^d g(t) \, dt \right) \leq \frac{1}{d-c} \int_c^d f(g(t)) \, dt + \frac{1}{2} \alpha R(c, d; g)
\]
where
\[
R(c, d; g) = \left[ \frac{1}{d-c} \int_c^d g(t) \, dt \right]^2 - \frac{1}{d-c} \int_c^d [g(t)]^2 \, dt.
\]