Corrigendum to: "A counterexample on global attractivity for Clark's equation" [Proceedings of the International Workshop *Future Directions in Difference Equations*, June 13-17, 2011, Vigo, Spain, pp. 97-105]

Víctor Jiménez López

August 22nd 2012

Although this does not affect the main conclusions of the paper (full proofs of which are going to appear in a forthcoming paper with Enrique Parreño Sánchez), Theorem 2.2 and Remark 2.1 are not correctly stated. Namely, one hypothesis is missed in Theorem 2.2, whose correct formulation is as follows:

Theorem 2.2. *Let h_ϵ, $0 < \epsilon < \epsilon_0$, be C^4 maps. Assume that for any ϵ there is $u_\epsilon \in I$ such that the following conditions are satisfied:*

(i) $h_\epsilon(u_\epsilon) = u_\epsilon$;

(ii) the map $D(\epsilon) := h'_\epsilon(u_\epsilon)$ *is differentiable and* $\lim_{\epsilon\to 0} D(\epsilon) = -1$, $\lim_{\epsilon\to 0} D'(\epsilon) < 0$;

(iii) the map $T(\epsilon) := \Sigma h_\epsilon(u_\epsilon)$ *is differentiable and* $\lim_{\epsilon\to 0} T(\epsilon) = 3/2$, $\lim_{\epsilon\to 0} T'(\epsilon) = 0$.

Then, if $k \geq 3$, $\epsilon > 0$ is small enough and we put $h = h_\epsilon$, $u = u_\epsilon$, (1) *exhibits a subcritical Neimark-Sacker bifurcation at $\alpha = \alpha_k(r)$, $r = h'(u)$. In particular, if $\alpha > \alpha_k(r)$ is close enough to $\alpha_k(r)$, then u is a local, but not global, attractor of* (1).

This issue also affects Remark 2.1, which must be corrected as follows:

Remark 2.1. Theorem 2.2 admits an alternative version replacing conditions $\lim_{\epsilon\to 0} D'(\epsilon) < 0$ and $\lim_{\epsilon\to 0} T'(\epsilon) = 0$ by the weaker assumption $\lim_{\epsilon\to 0} T'(\epsilon)/D'(\epsilon) < 1/4$. Then the statement holds true for all k *large enough*.

One should also notice that this correction does not affect the main counterexample of the paper, that given by equation (8), but it invalidates the one concerning Shepherd's function, because $D(\epsilon) = -(2+\epsilon^2+\epsilon^3+\epsilon^5)/(2+\epsilon^2+\epsilon^3)$, hence $D'(0) = 0$ and $\lim_{\epsilon\to 0} T'(\epsilon)/D'(\epsilon) = \infty$. Indeed, our calculations now suggest that, most probably, Neimark-Sacker bifurcation is supercritical in this case for all parameters $p, q > 0$ with $1/p + 2/q < 1$.