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Correction to the paper

"Positive Solutions of Nonlinear Eigenvalue Problems: Applications to Nonlinear Reactor Dynamics"

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The right hand side of Equation (3.10) of this paper should read $g(x, u_0) - N\Lambda_1 b(x) u_0$ rather than $g(x, u_0) + N\Lambda_1 b(x) u_0$. This error in sign is sufficient to invalidate partially the results claimed. With the corrected sign the right hand side of (3.10) is always positive if (i) $N=0$ or if (ii) $g(x, u) > N\Lambda_1 b(x) u$ for $u>0$ for some positive integer $N>0$. In the first case our analysis demonstrates existence of a positive solution under hypotheses H-1 to H-5 for all λ in $0 \leqq \lambda < \Lambda_1$. In the second case we add to H-1 to H-5 the further hypothesis that $g(x, u) > N\Lambda_1 b(x) u$ for $u>0$ for some integer $N>0$; we then conclude that a positive solution exists for all λ in the internal $0 \leqq \lambda < (N+1)\Lambda_1$.

The author is grateful to Professor HERBERT B. KELLER who noticed the sign error in equation (3.10). He was led to this observation through work of his concerning conditions for the *non-existence* of positive solutions of equations similar to (1.3). One of his theorems implies that the conditions H-1 to H-5 are not sufficient to guarantee the existence of a positive solution for *all* $\lambda \geqq 0$.

The author wishes to point out that for the problem (1.1), (1.2) of nonlinear reactor dynamics the existence of a solution for all $\lambda \geqq 0$ follows from the work of NORMAN LEVINSON (Dirichlet Problem for $\Delta u = f(P, u)$, J. Math. Mech. **12**, 567—575 (1963)). We have not yet been able to establish that a *positive* solution must exist for $\lambda \geqq \Lambda_1$. An unpublished theorem of H. B. KELLER shows that positive solutions are unique for $\lambda \geqq 0$. Thus, on the basis of the corrected results we know that there exists a unique positive solution for all λ in $0 \leqq \lambda < \Lambda_1$. The extension to $\lambda \geqq \Lambda_1$ still remains open, though we conjecture that it must be valid.

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