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AUTHORS' REPLY

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The authors wish to thank R. Van Dooren [1] for his interest in our paper [2] and for his general appreciation of the scheme of the numeric-analytical method presented in the paper for determining periodic orbits of non-linear dynamical systems which can treat different types of excitations and non-linearities and which can treat higher-dimensional systems.

As far as the comments of Van Dooren, we make the following observations.

The aim of the paper was to present a frequency domain based numeric-analytical method coupled with a stability analysis and path following approach. The efficacy of the iteration scheme was demonstrated in example 1 of reference [2] by showing how the successive iterations approach the accurate solution from the initial arbitarily chosen one. Example 2 was used to demonstrate the stability analysis and path following approach.

As has been pointed out by Van Dooren the value of β in the caption of Figure 1 of reference [2] as well as the line just preceding the figure should have been $\beta = 0.1$ and not $\beta = 0$. Since the problem was solved for many values of β, this error had inadvertantly crept in. We wish to thank Van Dooren for the correction.

The numeric-analytical algorithm presented in reference [2] was used to trace the response curve of example 2 starting from the point 'a' in Figure 5. The fold bifurcation points b and c and flip bifurcation points d and e were detected by stability analysis while the response curve was traced. Period-2 motion which bifurcated from the point e(flip) was further traced which goes along points f (flip), g (flip), h (fold) and ultimately merged with point d (flip-subcritical). Period-4 motion bifurcated from the point f was also traced which merged with point g. This exercise demonstrated the stability analysis and path following approach.

While determining the domains of attraction we discovered the presence of remote period-3 motion and then we traced its response curve [3]. However, we did not observe the period-6 motion and its period-doubling cascade pointed out by Van Dooren. We appreciate his efforts in locating the period-6 motion and its period-doubling cascade. As pointed out by him the amplitude of the period-6 motion is within the amplitude considered in reference [2] and the response of the period-6 motion needs to be included to completely describe the dynamical behavior of the system under study. We feel that the continuation of period-6 orbit can also be accomplished by the method presented in reference [2]. The basin boundaries corresponding to multiple periodic solutions reported in our paper were also obtained by us using the interpolated cell mapping procedure and are given in reference [3].

It is known that the path following approach alone cannot be directly used to detect the presence of remote attractors. Hence, the path following approach and determination of the domains of attraction are both necessary to completely determine the response characteristics of dynamical systems.

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