Erratum: "Coupled Deformation Modes in the Large Deformation Finite Element Analysis: Problem Definition" [Journal of Computational and Nonlinear Dynamics, 2007, 2, pp. 146–154]

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Figures 8–13 in Ref. [1] contain results of the simulation of a very flexible pendulum. The results presented in this paper are obtained using 4 elements. While convergence is achieved in the case of stiff structures using this number of elements; in the extreme case of very flexible structure convergence is not achieved using the proposed number of finite elements (Figs. 8–13) regardless of the method used in formulating the elastic forces. This is mainly due to the extreme bending configurations that include loops. Some of these configurations are associated with singularities when linear constitutive models are used in the large deformation analysis [2,3]. Therefore, the authors would like to bring to the attention of the reader that the results presented in Figs. 8–13 are currently being reexamined. However, all the conclusions made in the paper regarding the significance of the coupled deformation modes in the case of large deformation remain valid, as demonstrated by the results presented in Ref. [2]. The results presented in Ref. [2] are obtained using a number of finite elements that ensure convergence. There are several ways that are currently being explored by the authors in order to improve the finite element solution in extreme bending problems [3].

References

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[2] Maqueda, L. G., and Shabana, A. A., 2007, "Poisson Modes and General Nonlinear Constitutive Models in the Large Displacement Analysis of Beams," Multibody Syst. Dyn., **18**(3), pp. 375–396.
[3] Hussein, B. A., Sugiyama, H., and Shabana, A. A., "Convergence of the Finite Element Solution in Extreme Bending Problems," in preparation.