technique can also benefit from existing and ongoing theoretical work on preconditioned Krylov subspace methods.[12,13]

The present study also has an important ramification on the practical issue of integrating static reanalysis techniques with numerical optimization algorithms. The success of the CA technique taken together with the observations made in the present research suggests that it might be worthwhile to invest computational effort in constructing a good preconditioner. Because a large number of repeated analyses will be carried out during the optimization iterations, a good preconditioning scheme can lead to a significant improvement in the overall efficiency of the optimization process. In practice, a direct method can be employed to construct a preconditioner by decomposing a baseline stiffness matrix. During the course of the optimization iterations, structural analysis can then be carried out using preconditioned Krylov solvers.

In this Note the issue of how to improve the CA technique was not considered. However, it is expected that by employing ideas from the conjugate gradient squared algorithm or its variants[13] accurate approximations can be computed using a smaller number of basis vectors. Detailed studies are required to fully explore such possibilities.

It also appears that the extension of the CA technique to static reanalysis of topologically modified structures can be better understood using the observations made here. Namely, the concept of modified initial stiffness matrix[3,4] can be interpreted as a preconditioning technique. It is expected that, by leveraging related work on constructing preconditioners for block-partitioned matrices arising in domain decomposition schemes, more efficient algorithms for reanalysis of topologically modified structures can be developed.

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Errata

Accurate Calibration of Low-Speed Wind Tunnels, Including Humidity and Compressibility

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EQUATION (6) should read:

$$U_\infty = \sqrt{\gamma RT_\infty}M_\infty = \sqrt{2RT_T\varepsilon}[1 - 0.45(\varepsilon/\gamma) + 0(\varepsilon^2/\gamma)]$$

AIAA regrets the error.