

¹³Rodden, W. P., "A Method for Deriving Structural Influence Coefficients from Ground Vibration Tests," *AIAA Journal*, Vol. 5, May 1967, pp. 991-1000.

¹⁴Natke, H. G., private correspondence with W. P. Rodden, July 11, 1966.

¹⁵Flanely, W. G., and Berman, A., "The State of the Art of System Identification of Aerospace Structures," *System Identification of Vibrating Structures*, Reprints of Papers presented at ASME Winter Meeting, 1972, pp. 121-131.

¹⁶Falkner, V. M., "The Calculation of Aerodynamic Loading on Surfaces of any Shape," R&M 1910, British Aeronautical Research Council, 1943.

¹⁷Watkins, C. E., Woolston, D. S., and Cunningham, H. J., "A Systematic Kernel Function Procedure for Determining Aerodynamic Forces on Oscillating or Steady Finite Wings at Subsonic Speeds," NASA R-48, 1959.

¹⁸Guyan, R. J., "Reduction of Stiffness and Mass Matrices," *AIAA Journal*, Vol. 3, Feb. 1965, p. 380.

Reply by Author to Rebuttal by W. P. Rodden

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IN Ref. 1, this author combined a numerical method similar to that by Nelson and Cunningham² for computing an aerodynamic matrix with a finite element consistent mass formulation for flutter analysis of panels under initial stresses. Nelson and Cunningham's results were used for comparison. Such results were published earlier than the identical results given in Dr. Rodden's thesis. Although Nelson and Cunningham did not use the terminology AIC,

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they indeed used *aerodynamic matrices* [C_{mn} as defined in Eq. (19)] with amplitudes (generalized coordinates) of modes as degrees of freedom. This author regrets that he does not feel he should reference Dr. Rodden's thesis. Bolotin³ also only referenced Nelson and Cunningham's work and did not mention Dr. Rodden's thesis. It appears to be an international practice that when two solutions are identical, it is only necessary to reference the earlier one.

The widespread use of finite element method is the by-product of computers. This author finds it difficult to be excited about what went on more than 2000 years before the computer generation.

Dr. Rodden challenges the words "the kind of old, obsolete flexibility influence coefficient method he used" and thus, once again, finds a chance to tell a long story about his past work with the implication that his structural beam model without the slope degrees freedom is not obviously inferior when used in the type of panel flutter problems dealt with in Ref. 1. All this author can do is to suggest that Dr. Rodden include the slopes in his structural beam model next time.

In Figs. 5 and 8 of Ref. 1 the curves at low M are connected through the correct data computed at $M = 1.3, \sqrt{2}, 1.56$. Had data been computed for $M < 1.3$ and $1.3 < M < \sqrt{2}$, the curves connecting these points would have been drawn slightly differently. Therefore, Dr. Rodden's comment that the shape is incorrect is not pertinent to those data computed and presented.

The rest of the comments by Dr. Rodden do not appear to be relevant to the research being discussed. Since this author has a large number of tasks confronting him, he regrets that he can hardly afford the time to help Dr. Rodden achieve the credit he feels is due him. Nor can this author afford the time to participate, by commenting, in Dr. Rodden's earlier disagreements with "one of the self-proclaimed group of experts" that he brings up in his lengthy comments.

References

¹Yang, T. Y., "Flutter of Flat Finite Element Panels in a Supersonic Potential Flow," *AIAA Journal*, Vol. 13, Nov. 1975, pp. 1502-1507.

²Nelson, H. C., and Cunningham, H. J., NACA TR 1280, 1956.

³Bolotin, V. V., *Nonconservative Problems of the Theory of Elastic Stability*, edited by G. Herrmann, translated by T. K. Lusher, MacMillan Co., New York, N.Y., 1963, pp. 200, 231, 235.