go to zero even as \( N \) tends to infinity. As discussed in [21], the probability of error can be substantial even when \( N = \infty \). In contrast, the decision rule based on statistic \( C \) is consistent and the proof of consistency [2] does not involve any Bayesian arguments.

Further, one can also show that the rule based on the statistic \( C \) in (2) is also consistent where

\[
C = N \ln p + n g(N)
\]

(2)

where \( N, p, n \) have been defined earlier and \( g(N) \) is any monotonically increasing function of \( N \) such that \( g(N)/N + O \) as \( N \to m \).

References


Authors' Reply

V. KRISHNAMURTHI AND V. SESHAIDI

The authors thank A. S. Rao et al. for their interest in the reported work. The following points have been raised by them:

1) Taylor series expansion around \( s = 0 \) is no longer valid.
2) Reduced order model poles approximate the system poles which are far away from the imaginary axis.
3) The numerator stability array will break down when the system has a zero in the right-hand plane and/or symmetrically placed zeros of the form \( s = -a \) where \( a \) is a constant.
4) No theoretical justification is given for the procedure.

a) In the paper, the authors do not claim that the Taylor series expansion is valid for their method.
b) This statement is not correct. This has been illustrated in the paper with a numerical example of order 8.

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The alpha parameters are differently defined in order to avoid the inverse transformation. Thus,

\[
\ldots \frac{c_0 \cdot \cdot \cdot}{c_n \cdot \cdot \cdot} \ldots
\]

Hence, the reduced order model poles approximate system poles near the imaginary axis only.

c) The destabilizing singularities of the numerator are to be separated first before the application of the procedure and thus retained even in the reduced order system (as explained in the paper for the denominator polynomial).
d) Theoretical justification was not included in the paper due to page restrictions. For theoretical justification, the Ph.D. dissertation of the first author [1] may be referred to.

Thus, the procedure is generally applicable and yields desirable results.

References