Review of: "On a New Two-Point Taylor Expansion With Applications"

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Potential competing interests: No potential competing interests to declare.

This study introduces a novel two-point Taylor series expansion method, which deviates slightly from the traditional approach by employing recursive relations to compute coefficients. The expansion is applied to various functions, with investigations into both finite and infinite convergence intervals. The analysis reveals that the two-point expansion may exhibit either a single convergence interval or two separate intervals, particularly when the radius of convergence is finite. Comparison with single-point and classical two-point expansions demonstrates that the new method generally provides similar results, suggesting limited advantage over the traditional symmetric approach.

The proposed method demonstrates advantages in specific cases, suggesting its potential utility for those particular scenarios.

One notable strength lies in its ability to produce valid solutions across singularity points, a limitation often encountered with single-point Taylor expansions due to their single convergence interval. In contrast, the two-point Taylor expansion method overcomes this constraint and offers viable solutions.

As indicated by the author, further exploration of the method may unveil its applicability to additional cases outlined in the manuscript.

An extra note:

The term "x_{0-2}" may be clarified in "All expansions cease to be valid at the singular point of the function x=-1, no matter what the values of x_{0-2} are."