

Interval analysis involves investigating various types of solvability of interval systems. The most well-known ones are weak solvability, strong solvability and their combination AE solvability. Currently, there is no known exponential algorithm that is able to test the AE solvability of interval systems. Some of its special types are NP-complete or co-NP-complete problems. In this paper, we partially answer the question when such simplification occurs. We will show some necessary and sufficient conditions for general AE solvability, as well as its special cases. We will also look at various equivalences between systems and describe transformations that preserve solvability. Finally, we will implement some necessary, sufficient and characterization conditions in Matlab using the Intlab toolbox and numerically test their success rate.