An interval-valued reliability model with bounded failure rates

The approach to deriving interval-valued reliability measures described in this paper is distinctive from other imprecise reliability models in that it overcomes the issue of having to impose an upper bound on time to failure. It rests on the presupposition that a constant interval-valued failure rate is known possibly along with other reliability measures, precise or imprecise. The Lagrange method is used to solve the constrained optimization problem to derive new reliability measures of interest. The obtained results call for an exponential-wise approximation of failure probability density function if only partial failure information is available. An example is provided. © 2012 Copyright Taylor and Francis Group, LLC.
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