From Concept to Theory to Software to Applications - the Research Strategy and Status of Verified Combination of Intervals with Distribution Functions

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Abstract

Arithmetic when one operand is a distribution function and the other
is an interval, or when both are intervals or distribution functions,
can be done numerically such that automatically verified bounds on the
results are obtained. Our approach builds on a foundation of previous
work by others both within and without the interval computations
community. A software tool that implements the approach has been
built. The natural next stage in the development of this method is
applications.

This talk will start by describing how our method evolved from
previous work, together with a brief description of the algorithm. The
software will then be demonstrated. Finally, our current search for
applications will be discussed. The research strategy currently
focuses on developing applications, a task as challenging - and
promising - as the other stages in the research.