On strongly standard complete fuzzy logics: MTL\(^Q\_*\) and its expansions

Finding strongly standard complete axiomatizations for t-norm based fuzzy logics (i.e. complete for deductions with infinite sets of premises w.r.t. semantics on the real unit interval \([0, 1]\)) is still an open problem in general, even though results are already available for some particular cases like some infinitary logics based on a continuous t-norm or certain expansions of Monoidal t-norm based logic (MTL) with rational constant symbols. In this paper we propose a new approach towards the problem of defining strongly standard complete for logics with rational constants in a simpler way. We present a method to obtain a Hilbert-Style axiomatization of the logic associated to an arbitrary standard MTL-algebra expanded with additional connectives whose interpretations on \([0, 1]\) are functions with no jump-type discontinuities.
URL: http://dx.doi.org/10.2991/ifsa-eusflat-15.2015.117

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