

# A proof theoretic approach to standard completeness

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Standard completeness, that is completeness of a logic with respect to algebras based on truth values in  $[0, 1]$  has received increasing attention in the last years. In a standard complete logic connectives are interpreted by suitable functions on  $[0, 1]$ , and this makes it a fuzzy logic in the sense of Hájek.

In this talk we present a proof of standard completeness that uniformly applies to many axiomatic extensions of Uninorm Logic UL. Its core is a general proof of the elimination of the Takeuti and Titani density rule from derivations in Gentzen-style (hypersequent) calculi. Our proof applies to all logics lying between UL and MTL already known to be standard complete and allows for the discovery of new uninorm-based fuzzy logics. The latter include UL extended with contraction or mingle.