On Triangular Norm based Fuzzy Description Logics

Description Logics (DLs) are knowledge representation languages useful to represent concepts and roles. Fuzzy Description Logics (FDLs) incorporate both vague concepts and vague roles modeling them as fuzzy sets and fuzzy relations respectively. In the present paper, following ideas from Hájek, we propose the use of t-norm based (fuzzy) logics with truth constants in the language as logics underlying the fuzzy description language. We introduce the languages ALC_L*(Al[S]) and ALC_L*(Al[S]) as an adequate syntactical counterpart of some semantic calculi given in different works dealing with FDLs.