

ALGEBRAIC AND TOPOLOGICAL METHODS IN NON-CLASSICAL LOGICS III
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FREE CONSTRUCTIONS OF μ LII ALGEBRAS

LUCA SPADA

Recently an attempt to introduce fixed points in LII logic, the strongest among t-norm based logic, have been proposed. The methods used for such an attempt are different from the classical ones (of first order logic, or modal logic) which rely on the underlying lattice structure to guarantee the existence of fixed point in the semantic. In case of multi-valued logics one can use the functional semantic to interpret the fixed point of a formula. Such a method has limitations, different from the ones of the classical approach, but also some advantages.

The algebraic semantic of such a logic has some interesting properties. The linearly ordered members of the algebraic semantic are indeed interpretable in real closed fields and vice-versa. We will propose some new results about this variety such as a description of its free algebras over a finite number of generators, which proves to be in deep connection with Galois' theory. Finally will show some properties of the functor which "forgets" the fixed points operations.

UNIVERSITY OF SALERNO
E-mail address: `lspada@unisa.it`