ADVANCES IN THE ŁΠ AND ŁΠ$\frac{1}{2}$ LOGICS II

Petr Cintula

Institute of Computer Science
Academy of Sciences of the Czech Republic
Pod vodárenskou věží 2, 182 07 Prague 8, Czech Republic
and
Department of Mathematics, Faculty of
Nuclear Sciences and Physical Engineering
Czech Technical University
Prague, Czech Republic
cintula@cs.cas.cz

The ŁΠ and Ł$\Pi\frac{1}{2}$ logics were introduces by Godo, Esteva and Montagna in [4] and further developed in papers [3] and [1] and in thesis [2]. These logics extend many other known propositional and predicate logics, including the three mainly investigated ones (Gödel, Product and Łukasiewicz logic).

The state of the art of these logic will be presented it this work, including a wide variety of new results: some refinements of the axiomatic system; theorems about connection of the Ł$\Pi\forall$ logic and the Takueuti and Titani's logic; partial result about complexity and arithmetical hierarchy; refinement of the embedding theorem (about embedding logics induced by a finitely constructed t-norm into the Ł$\Pi\frac{1}{2}$ logic); a complete answer to the question of the K-compactness of these logics and some other minor results.

Partial support of the grant No. A103004/00 of the Grant agency of the Academy of sciences of Czech republic is acknowledged

References

[1] Cintula P.: *Advances in the* ŁΠ *and* Ł$\Pi\frac{1}{2}$ *logics*, Submited to the Arch. of Math. logic.

[2] Cintula P.: *The* ŁΠ *and* Ł$\Pi\frac{1}{2}$ *logics*, Master's thesis, Czech Technical University, FNSPE, Dept. of Math., 2001.

[3] Cintula P.: *The* ŁΠ *and* Ł$\Pi\frac{1}{2}$ *propositional and predicate logics*, Fuzzy Sets and Systems, 124/3:21–34, 2001.

[4] Esteva F., Godo L., Montagna F.: *The* ŁΠ *and* Ł$\Pi\frac{1}{2}$ *logics: two complete fuzzy systems joining łukasiewicz and product logics*, To appear in Archive of Math. Logic.

[5] Hájek P.: *Metamathematics of fuzzy logic*, Kluwer, Dordrecht, 1998.