

- S.H.SAJJADI, MORTEZA MONIRI, *CUTS IN MODELS OF THE FRAGMENTS OF BOUNDED ARITHMETIC*.

E-mail: s.hoseinsajadi@gmail.com.

Department of Mathematics, Statistics & Computing Science, Shahid Beheshti University, Tehran, Iran.

E-mail: ezmoniri@gmail.com.

We study some model theoretic properties of cuts in models of the fragments of bounded arithmetic, specially S_2^i and T_2^i . In correspondence with polynomial induction we have defined a new notion of cut and concluded some overspill properties. Constructing special substructures in these models and some extensions are of consequences of our results.

[1] S.R. BUSS, *Bounded Arithmetic*, Bibliopolis, Naples, 1989.

[2] J. BORRERO-DÁZ, A.FERNÁNDEZ-MARGARIT AND M.PREZ-JIMNEZ, *On Overspill Principles and Axiom Schemes for Bounded Formulas*, *Mathematical Logic Quarterly*, vol. 42 (1996), pp. 341–348.

[3] C.C. CHANG, J.J. KEISLER, *Model Theory*, North-Holland, 1990.

[4] C. DIMITRACOPOULLOS, *Overspill and Fragments of Arithmetic*, *Archive for Mathematical Logic*, vol. 28 (1989), pp. 173–179.

[5] P. HJEK, P. PUDŁK, *Metamathematics of First Order Arithmetic*, Springer-Verlag, 1993.

[6] R. KAYE, *Models of Peano Arithmetic*, Oxford University Press, Oxford, 1991.

[7] R. KOSSAK, J.H. SCHMERL, *The Structure of Models of Peano Arithmetic*, Clarendon Press, Oxford, 2006.

[8] J. KREJČEK, *Bounded Arithmetic, Propositional Logic and Complexity Theory*, Cambridge University Press, Cambridge, 1995.

[9] M. MONIRI, *Model Theory of Arithmetic with Applications to Independent Results*, *Logic in Tehran* 2006 pp. 239–247.

[10] A. PILLAY, *Cuts in Models of Arithmetic*, *Lecture Notes in Mathematics*, vol. 890, pp. 13–20.