

- MICHAEL C. LASKOWSKI, *Data compression and definability of types in stable and dependent formulas.*

Department of Mathematics, University of Maryland, College Park, MD 20742 USA.

E-mail: mc1@math.umd.edu.

If a first-order formula has Uniform Definability of Types over Finite Sets (UDTFS) then the associated uniformly definable family of subsets is *compressible*, which has direct applications to learning theory and data compression.

It is easily seen that any formula φ with UDTFS must be dependent, but the converse remains open. Several years ago, Shelah proved that every stable formula φ has UDTFS, but we improve his argument by showing that the number of parameters needed is bounded by the Shelah 2-rank $R_\varphi(x = x, 2)$. We discuss ideas of Vincent Guingona [2], which, among other things, imply that every formula in a dp-minimal theory has UDTFS. This generalizes older results of Hunter Johnson and the speaker [1].

[1] JOHNSON, H.R. AND LASKOWSKI, M.C., *Compression schemes, stable definable families, and o-minimal structures*, ***Discrete and computational geometry***, vol. 43 (2010) pp. 914-926.

[2] GUINGONA, VINCENT, *On uniform definability of types over finite sets*, www.math.umd.edu/~vincentg/UDTFS.pdf (submitted).