

**Stephen G. Simpson** (Penn State). *Medvedev degrees of 2-dimensional subshifts of finite type.*

*Abstract.* We apply some fundamental concepts and results from mathematical logic in order to obtain an apparently new counterexample in symbolic dynamics. Two sets  $X$  and  $Y$  are said to be *Medvedev equivalent* if there exist partial recursive functionals from  $X$  into  $Y$  and vice versa. The *Medvedev degree* of  $X$  is the equivalence class of  $X$  under Medvedev equivalence. There is an extensive recursion-theoretic literature on the lattice of Medvedev degrees of nonempty  $\Pi_1^0$  subsets of the Cantor space. This lattice is known as  $\mathcal{P}_s$ . We prove that  $\mathcal{P}_s$  consists precisely of the Medvedev degrees of 2-dimensional subshifts of finite type. We use this result to obtain an infinite collection of 2-dimensional subshifts of finite type which are, in a certain sense, mutually incompatible.