

Meeting: 1001, Evanston, Illinois, SS 8A, Special Session on Computability Theory and Applications

1001-03-62 **Manuel Lerman*** (lerman@math.uconn.edu), Department of Mathematics, University of Connecticut, 196 Auditorium Road, Storrs, CT 06269-3009. *The existential theory of the jump-usl of Turing degrees with least element.* Preliminary report.

The existential theory of the jump-usl of degrees with least element A *jump uppersemilattice with least element* (jlusl) is an upper semilattice with least element which supports a jump operator, i.e., a unary function that is order-preserving and maps each element to one that is strictly larger. $\langle \mathbb{D}, \not\leq, \vee, ' \rangle$, the usl of Turing degrees with least element $\not\leq$ and the jump operator is a jlusl. Theorem: The elementary theory of the jlusl of Turing degrees is decidable. The proof proceeds by defining the concept of *finite support* for a jlusl, and showing that every jlusl with finite support can be embedded into the Turing degrees. This embedding is, in fact, into the REA degrees and hence into the arithmetical degrees, so the elementary theory of each of those jlusls is also decidable. (Received August 03, 2004)