

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

1001-03-80 **Antonio Montalban*** (antonio@math.cornell.edu), Department of Mathematics, Cornell University, Ithaca, NY 14850. *On Fraïssé's conjecture and some equivalent statements.*

Fraïssé's conjecture, proved by Richard Laver in 1971, is the statement that says that the countable linear orderings form a well-quasi-ordering under the relation of embeddability. We study Fraïssé's conjecture from the viewpoint of Reverse Mathematics. It is known that Fraïssé's conjecture implies ATR_0 and is implied by $\Pi_2^1\text{-CA}_0$. But, its exact proof theoretic strength is unknown. We prove that it is equivalent to three other statements: (1) The signed trees form a well-quasi-ordering; (2) Every scattered linear ordering can be decomposed as a finite sum of indecomposable linear orderings; (3) Jullien's theorem on the classification of extendible linear orderings. The equivalence with (1) and (2) is over RCA_0 , and the equivalence with (3) is over $\text{RCA}_0 + \Sigma_1^1$ -induction. (Received August 10, 2004)