1003-03-1318   **Noam Greenberg*** (`erlkoenig@nd.edu`), Department of Mathematics, University of Notre Dame, Notre Dame, IN 46556, and **Antonio Montalban** (`antonio@cornell.edu`), Department of Mathematics, Cornell University, Ithaca, NY 14853. *Superatomic Boolean algebras and* $\mathtt{ATR}_0$.

We discuss classes of objects which have ordinal invariants, for example superatomic Boolean algebras and reduced p-groups. We observe that the ordinal structure of these classes make $\mathtt{ATR}_0$ the natural system to work with them. The results and techniques are also related to index-set results. (Received October 05, 2004)