1078-06-70 **Joel Berman*** (`jberman@uic.edu`). *Characterizations of maximal-sized n-generated algebras.* Preliminary report.

For n a positive integer and K a finite set of finite algebras, let $\mathbf{L}(n, K)$ denote the largest n-generated subdirect product whose subdirect factors are algebras in K. For every n and K we provide an upper bound on the cardinality of $\mathbf{L}(n, K)$. This upper bound depends only on n and basic numerical parameters involving the subalgebras, automorphisms and congruence relations of the algebras in K. Let $\mathcal{V}$ denote the variety generated by K. We provide several characterizations of when the free algebra for $\mathcal{V}$ on n free generators has cardinality equal to $|\mathbf{L}(n, K)|$. One characterization is in terms of basic algebraic properties of $\mathcal{V}$ and of the algebras in K. The second involves the term operations for members of K. The third characterization, and the one that will be emphasized in this talk, is based on specific computational tests involving the algebras in K. (Received November 18, 2011)