MARKO DJORDJEVIĆ, *Finite variable logic, stability and finite models*

Department of Mathematics, Uppsala University, Box 480, 751 06 Uppsala, Sweden.
e-mail: marko@math.uu.se

L^n is first order logic with the restriction that at most n distinct variables may occur in a formula. Analogues of concepts from stability theory will be introduced for L^n-theories. It will follow that for L^n-theories with finitely many L^n-types (so in particular for L^n-theories with finite models) stability and ω-stability are equivalent. We also consider the problem of when an L^n-theory T with infinite models also has finite models. It is easy to see that if T has infinitely many L^n-types then T has no finite models. Since the L^3-theory of dense linear order has finitely many L^n-types but has no finite models it follows that a finite bound on the number of L^n-types is not enough to guarantee the existence of finite models. However, the L^3-theory of dense linear order is unstable. We will see that if an L^n-theory T has a natural amalgamation property and is stable and has only finitely many L^n-types then T can be extended to an L-theory which is ω-categorical and ω-stable, and from this it follows that T has arbitrarily large finite models.