

A REPORT ON NSOP₁ THEORIES

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ABSTRACT. This is a joint work with J. Dobrowolski and N. Ramsey. SOP₁ (i.e., 1-strong order property) is introduced by S. Shelah, and it implies the tree property. Hence any simple theory is NSOP₁ (i.e., not having SOP₁). The random parametrized equivalence relations, an infinite dimensional vector space with a bilinear map, and an unbounded PAC field are typical examples having non-simple NSOP₁ theories. Recently I. Kaplan and N. Ramsey showed that in any NSOP₁ theory, **over models**, Kim-independence satisfies all the basic axioms that nonforking satisfies in simple theories (such as symmetry, transitivity, local character, extension, and type-amalgamation), except base monotonicity. (In simple theories, Kim-independence and nonforking independence coincide.)

Now we show that the same hold **over any set** under nonforking existence. Namely in any NSOP₁ theory with nonforking existence, over any set, Kim-independence satisfies all the mentioned basic axioms (except base monotonicity) including type-amalgamation of Lascar types. I will talk about other related topics/results as well.