UNARY QUANTIFIERS AND BUILT-IN SUCCESSOR

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Unary quantifiers binding a single formula were introduced by Andrzej Mostowski 50 years ago. The notion of generalized quantifiers was subsequently enhanced by Lindström 1966, but unary quantifiers remain an interesting special case. The definability theory of unary quantifiers is well-understood and leads to some interesting combinatorics involving Ramsey theory (see, e.g., Nešetřil and Jouko Väänänen 1996 or Luosto 2000). However, the impact of built-in relations in the structures has not yet been thoroughly explored. There are some indications that the definability theory in ordered structures is difficult (Luosto 2004). Here, we discuss the case of built-in successor relation and show that except for the change in quantifier ranks, built-in successor is not strong enough to enhance the expessive power of unary quantifiers.

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