ONNILLI, a study in intuitionistic propositional logic

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Abstract

ONNILLI-formulas were introduced recently by N. Bezhanishvili and D. de Jongh, and were shown to be (up to frame equivalence) the set of formulas that are preserved under monotonic images of descriptive or Kripke frames. As a result, ONNILLI was shown to be a syntactically defined set of formulas that axiomatize all stable logics. Whether or not ONNILLI was exactly the set of formulas preserved under monotonic images was left as an open problem.

In this talk, we show that ONNILLI satisfies the uniform interpolation property. Furthermore, we show that ONNILLI is exactly the set of robust formulas with respect to total zags. As a result, we obtain that ONNILLI is exactly the set of formulas that are preserved in monotonic images of descriptive or Kripke models, resolving the problem in affirmative. In fact, we show that a stronger version of this problem holds: ONNILLI is exactly the set of formulas that are preserved in monotonic bijections of descriptive or (finite) Kripke models.