Mathematical and logical aspects of termination orderings

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Abstract

In the first part of the talk we study functorial properties of some termination orderings following ideas from Feferman and Girard. Using a classical result which basically goes back to Ehrenfeucht we obtain some applications to the model theory of termination orderings with respect to infinitary languages.

In the second part we investigate analytical properties of termination orderings with respect to their count functions. These count functions can be classified using Tauberian methods and methods from complex analysis. We give some applications to independence results for Peano arithmetic. Further we obtain zero one laws for segments of the nested multiset ordering (joint work with Woods).