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Daniel J. Miller* (daniel_jeffrey_miller@yahoo.com). *Constructing expansions of the real field by restricted transcendental analytic functions with decidable theories*. Preliminary report.

Tarski showed that the theory of the real field is decidable. More recently, many examples of o-minimal structures have been constructed. These structures share many of the same geometric properties as the real field, but it had been unknown if any of them have decidable theories. This talk discusses a method of constructing o-minimal expansions of the real field which define transcendental functions and have decidable theories. This method constructs no natural examples of such structures, but it does show that they are plentiful in a certain topological sense. (Received July 29, 2006)