Title: Descriptive and parameterized complexity

Author: Martin Grohe

Abstract: Descriptive Complexity Theory studies the complexity of problems of the following type:

> Given a finite structure A and a sentence S of some logic L, decide if A satisfies S?

In this survey we discuss the *parameterized complexity* of such problems. Basically, this means that we ask under which circumstances we have an algorithm solving the problem in time $f(S)||A||^c$, where f is a computable function and $c>0$ a constant. We argue that the parameterized perspective is most appropriate for analyzing typical practical problems of the above form, which appear for example in database theory, automated verification, and artificial intelligence.