Neil Immerman, at the very end of “Languages That Capture Complexity Classes”, wrote:

“Finally, we hope that attractive versions of the above languages will be developed for actual use as programming and or database query languages.”

The current state of Declarative Programming is still quite far from implementing this view. The closest counterpart is various Declarative Programming paradigms. Behind them, is the enormous success of SAT solvers. We view Declarative Programming broadly, in the Immerman’s sense: Logics themselves are programming languages. We would like to understand in what way Logic, when used for solving computational problems, is different from Turing machines.

In this talk, we will explain what it has to do with actions, angelic and devilish non-determinism and the Synthesis problem for a modal temporal logic over finite traces.