Hyper Test Tables

**Background.** Hyper properties became very popular in the last years, because of their expressive power. The core of hyper properties is the possibility to (universal and existential) quantified over program traces. For example, this enables the specification of refinement (“forall runs in the old software revision, exists a run in the new revision“) or:

Hyperproperties can express security policies, such as secure information flow and service level agreements, that trace properties cannot.

— Clarkson and Schneider in *Hyperproperties. JCS 18. 2010.*

**Goal.** The goal is a table-based specification language, that (a) supports hyper properties and (b) is decidable by state-of-the-art tools (model checker or SMT solver).

**Task.** Your task is to understand the current work of generalized test tables, HyperLTL and HyperCTL. You define the syntax and semantic of the specification language and implement a decision procedure for proving the conformance of reactive system to your specification.

**Your profile.** Programming skills on Java required. Furthermore, you should be interested in formal logic, especially in automata theory and temporal logics. You should have completed the Formal Methods (Formale Systeme) Course at KIT or equivalent. Formal System 2 (Theory and Practise) are heavy benificial.


**Kontakt**
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