

**1 CHOOSE AN ACTION**

STV is a tool for verification of Multi-Agent Systems. It does explicit-state model checking and addresses the state space explosion problem. STV offers:

- ▶ model verification,
- ▶ automated partial order reduction,
- ▶ bisimulation - checking equivalence of models according to a defined relation of A-bisimulation.

**2 GENERATE MODEL(S)**

STV includes several parameterized example models:

- ▶ asynchronous: simple & two-stage voting, train-gate-controller;
- ▶ synchronous: bridge end-play, castles, drones, Tian Ji.

In a model specification file user can define:

- ▶ local automata for the agent(s),
- ▶ propositional variables,
- ▶ persistent propositions,
- ▶ agent names,
- ▶ ATL formula.

**3 CHOOSE A MODEL TO VIEW:**

- ▶ local automaton for each agent,
- ▶ generated global and reduced models for POR,
- ▶ side-by-side view of two (global) models for bisimulation-checking.

**4 EXPLORE MODEL(S)**

GUI provides an intuitive interface with color-highlights for:

- ▶ initial states,
- ▶ winning strategy (if exists),
- ▶ states satisfying given formula,
- ▶ reduced model fragment,
- ▶ pairs of bisimilar node subsets.

**5 VERIFY MODEL(S)**

Given formula can be verified both on global and reduced models using:

- ▶ fix-point approximation (upper/lower),
- ▶ dominance-based strategy search (DominoDFS).

**6 ADJUST GRAPH SETTINGS**

- ▶ The view can be panned and zoomed.
- ▶ Labels with state or transition details can be shown by hovering over the target node/edge or toggled for the whole graph.