

detail and which are participating in an ensemble of
30 Can we assess our level of doubt? Is possible to as
a nondeterministic agent and, therefore, how much o
certificates?

While in the general case this assessment is difficult
and for nondeterministic agents constructed from co
35 FSMs, we show here that that the assessment is sim
just relies on high-level summaries of FSM topology,
of the term.

The interesting point of this analysis is that, accordi
theory, it is impossible. For example Nancy Leveson
40 enemy of reliability” [5]. We disagree: nondetermin

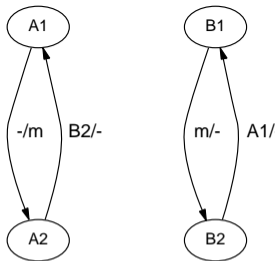
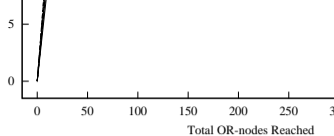
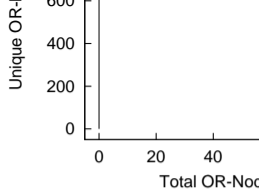


Fig. 1. A system of communicating FSMs (“m”



Random search results for model of Dekkers (a two-process mutual exclusion problem from Holzmann [?]). Dots show when a model is found by the search. The error case.

Fig. 2. Random search of AND-OR graphs representing FS



Random search results for a v
FSM model, for which the set
require at most 2.65×10^{178}

Fig. 3. Random search of AND-OR g

cases. To improve our game, we might search for conditions of low frequency. Two such conditions are shown in the WHERE clause of the query shown in Figure 5. In the case of `outlook=overcast`, the best time to play is any time. In the case of `humidity ≤ 90`, we only play on days when there is only one way to play lots of golf would be to select a vacation that is not overcast. While on holidays, one thing to watch for is rain. If it rains, then our frequent golf games are threatened.

The tests in the WHERE clause of the select statements in treatment learning get a score and the learner uses the scores resulting from *applying a treatment* (i.e. using the test results) to select a mode, TAR2 does *controller learning* that finds a treatment that rejects good classes and reject worse classes By reversing the scores

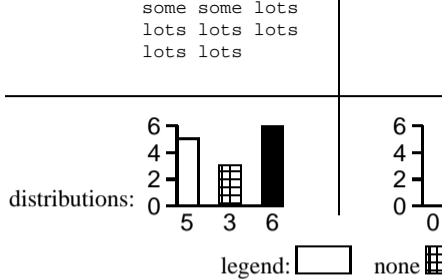
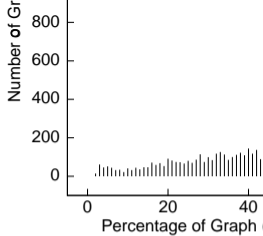


Fig. 5. Class distributions selected

plateau height. We would like to know FSM models different from FSM models yielding low search plateau heights. We would like to know the attributes listed above (number of machines, number of states, etc.) for the models with high plateaus represented by the right side of Figure 6?

In our first simple experiment we used TAR2 to determine what range of that attribute, could most significantly reduce plateau heights (just like the very simple TAR2 golf example). We found that restricting *outlook* to *overcast* led to the following treatment: restrict *state inputs* to its highest values. What that means, consider Figure 7, which shows the plateau heights (with a dot for each model). On the left, where



Average plateau height = 69.3

Fig. 6. Summary of time-to-plateau (top) and pl

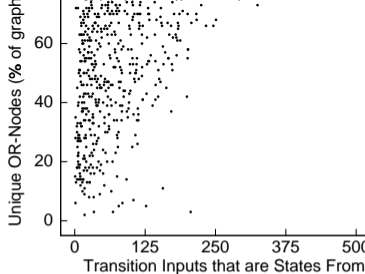


Fig. 7. The number of transition inputs that are states from

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