Test of Restarts in SBSAT

Michal Kouril

June 2, 2003

The objective of these tests is to evaluate the SBSAT behaviour if the restarts are implemented. While running sbsat on different problems the lemma cache was dumped onto the harddrive every 1000 backtracks. The SBSAT was restarted for every saved lemma cache with standard (non-weight aware) Johnson heuristic and also with variable weight aware Johnson heuristic where the weight of a variable v was $Weight(v) = \sqrt{(smurfs(v) + specfn(v) + lemmas(v))}$

The graphs show how the number of choice points change depending on which lemma cache is preloaded.

Tested benchmarks:

- dlx2_ca.trace see Figure 1
- dlx2_cc.trace see Figure 2
- dlx2_cl.trace see Figure 3
- dlx2_cs.trace see Figure 4
- 5-wid_360-var_rr.cnf see Figure 5

Conclusion

The graphs indicate that restarting in different points during the execution might bring significant improvement in the number of choice points but also could cause substantial increase in the number of choice points.

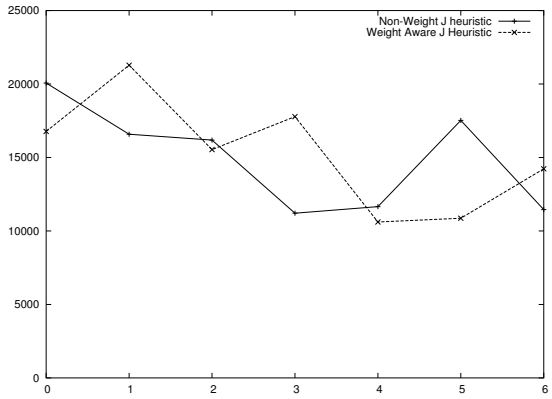

Figure 1: dlx2_ca.trace

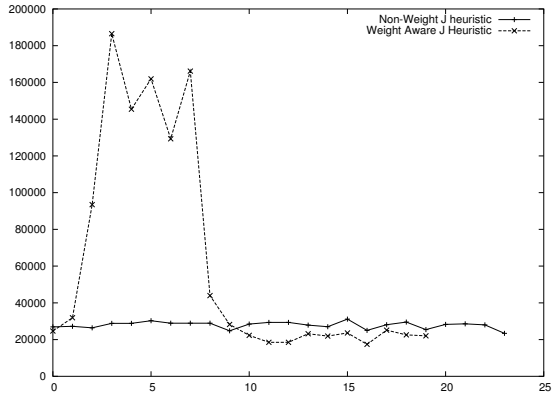

Figure 2: dlx2_cc.trace

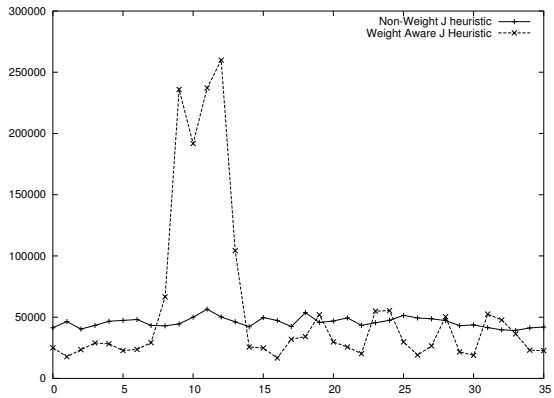

Figure 3: dlx2_cl.trace

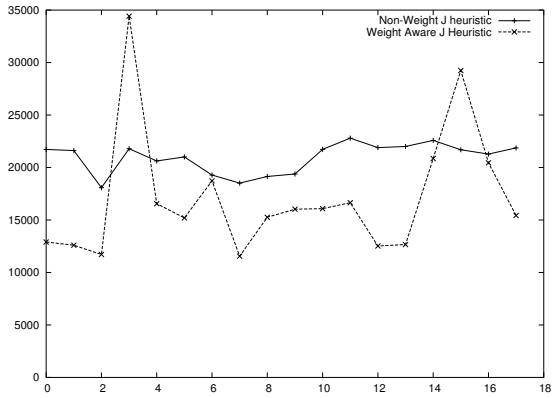

Figure 4: dlx2_cs.trace

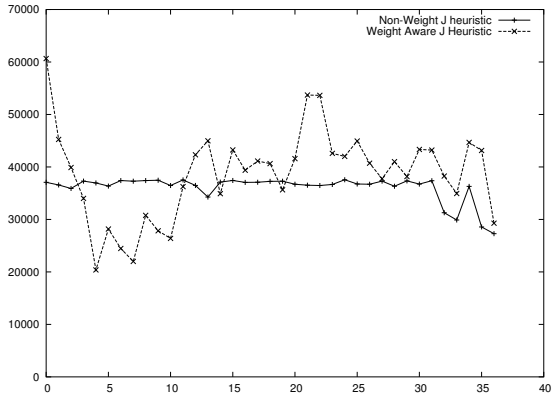

Figure 5: 5-wid_360-var_rr.cnf