Improving Coverage-Based Localization of Multiple Faults Using Algorithms from Integer Linear Programming

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Abstract: Coverage-based fault localization extends the utility of testing from detecting the presence of faults to their localization. While coverage-based fault localization has shown good evaluation results for the single fault case, its ability to localize several faults at once appears to be limited. In this paper, we show how two partitioning procedures borrowed from integer linear programming can help improve the accuracy of standard coverage-based fault locators in presence of multiple faults by breaking down the localization problem into several smaller ones that can be dealt with independently. Experimental results suggest that our approach is indeed useful, the more so as its cost appears to be negligible.