Summary
Whole Program Paths
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1 To be completed before class

What are the problems solved by this paper? (50 words)
Profiling is an important technique to assist the compiler in doing optimizations. Path profiling is one such useful profiling techniques used to detect hot spots in the program. In existing profiling techniques it is very difficult to profile paths that cross procedure and loop boundaries. Such inter-procedural and inter loop profiles are very important to find the program’s dynamic control flow. So there is a need to do efficient whole program path profiling.

What are the approaches attempted by this paper? (50 words)
In this paper, first instrumentation is done and acyclic paths are found. Usually other techniques cannot do more than this. In this paper they used a heirarchical compression algorithm called SEQUIRUR that turns the stream of acyclic paths into a context-free grammar. The grammar is actually a DAG which is called a WPP(whole program paths). This records the program’s entire control flow very compactly. Then the paper also used this WPP to get hot paths from the program.

What are the main conclusions of this paper? (50 words)
The paper proposes the whole program paths that captures a program’s complete control flow in a compact and traceable form. The compression algorithm SEQUITUR produces grammars that are only moderately large and also it doesn’t take too long. The compression phase can be pipelined with the instrumentation phase thus reducing the time to do profiling. This shows that the WPP proposed is very efficient. The paper gives an example of the uses of WPP by doing hot path detection. Also this technique can be used to detect program errors.

2 To be completed after class

Did this paper address an important issue? Explain. (100 words)

Are the proposed approaches valid? Describe its strength and weakness. (100 words)

Do the results support the conclusions? Explain. (100 words)
Describe the potential future works? (100 words)