

Automatic Testing of Program Slicers*

Sergio Pérez,[†] Josep Silva, and Salvador Tamarit

VRAIN, Universitat Politècnica de València
Camí de Vera s/n, E-46022 València, Spain
{serperu, jsilva, stamarit}@dsic.upv.es

Program slicing is a technique to extract the part of a program (the slice) that influences or is influenced by a set of variables at a given point (the slicing criterion). Computing minimal slices is undecidable in the general case, and obtaining the minimal slice of a given program is normally computationally prohibitive even for very small programs. Therefore, no matter what program slicer we use, in general, we cannot be sure that our slices are minimal. This is probably the fundamental reason why no benchmark collection of minimal program slices exists. In this work, we present a method to *automatically* produce quasi-minimal slices. Using our method, we have produced a suite of quasi-minimal slices for Erlang that we have later *manually* proved they are minimal. We explain the process of constructing the suite, the methodology and tools that were used, and the results obtained. The suite comes with a collection of Erlang benchmarks together with different slicing criteria and the associated minimal slices.

References

- [1] Sergio Pérez, Josep Silva & Salvador Tamarit (2019): *Automatic Testing of Program Slicers*. *Scientific Programming* vol. 2019, Article ID 4108652, pp. 1–15, doi:10.1155/2019/4108652. Available at <https://www.hindawi.com/journals/sp/2019/4108652/>.

*This work has been partially supported by the EU (FEDER) and the *Spanish Ministerio de Ciencia, Innovación y Universidades/AEI* under grant TIN2016-76843-C4-1-R and by the *Generalitat Valenciana* under grants PROMETEO-II/2015/013 (SmartLogic) and Prometeo/2019/098 (DeepTrust).

[†]Sergio Pérez was partially supported by *Universitat Politècnica de València* under FPI grant PAID-01-18.