Effective Function Merging in the SSA form

Authors: *Rodrigo C. O. Rocha, Pavlos Petoumenos, Zheng Wang, Murray Cole, and Hugh Leather. (UK)*

Keywords: *Code Size Reduction, Function Merging, LTO.*

Proceedings of the 41st ACM SIGPLAN International Conference on Programming Language Design and Implementation (PLDI '20), June 15–20, 2020, London, UK. ACM, New York, NY, USA

https://dl.acm.org/doi/10.1145/3385412.3386030

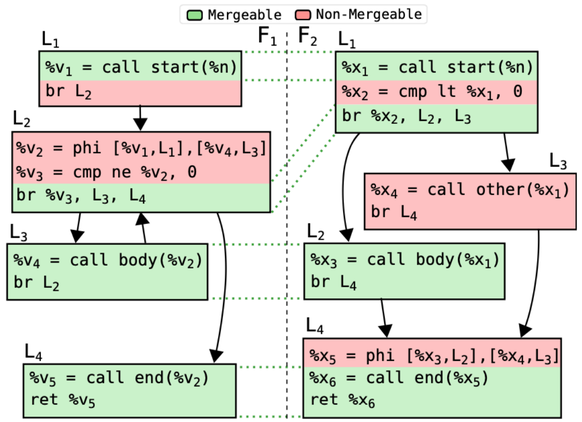
Reading 04.04.2023. Zakharov Vladimir

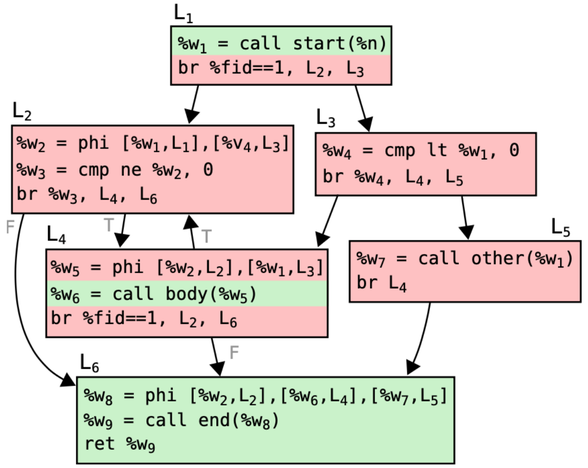
Meta Data

Conference:	PLDI (Programming Language Design and Implementation)
Track:	Software and its engineering
Year:	2020
Number of Authors:	5
Citations:	15
Pages (PDF):	15
Figures:	25
References:	33
Formals:	Absent

What is the study about?

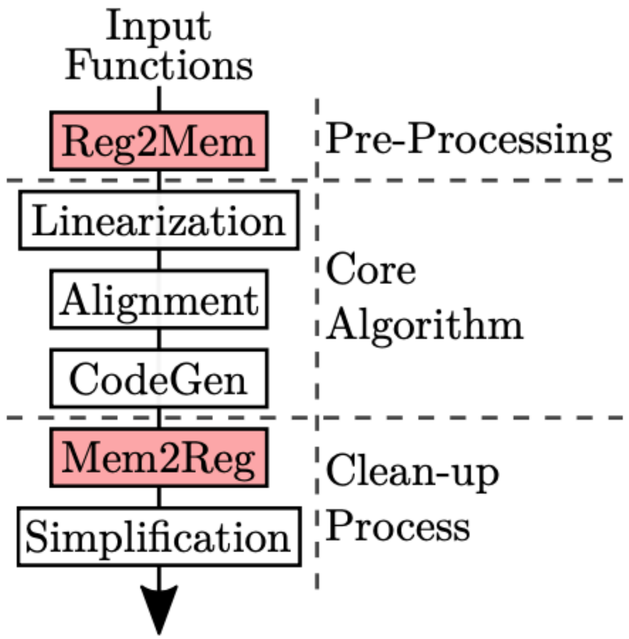
- Embedded systems have hard-memory space limitations.
- In order to reduce the code size we can merge functions
- We can do it in LLVM IR
- PHI nodes problem



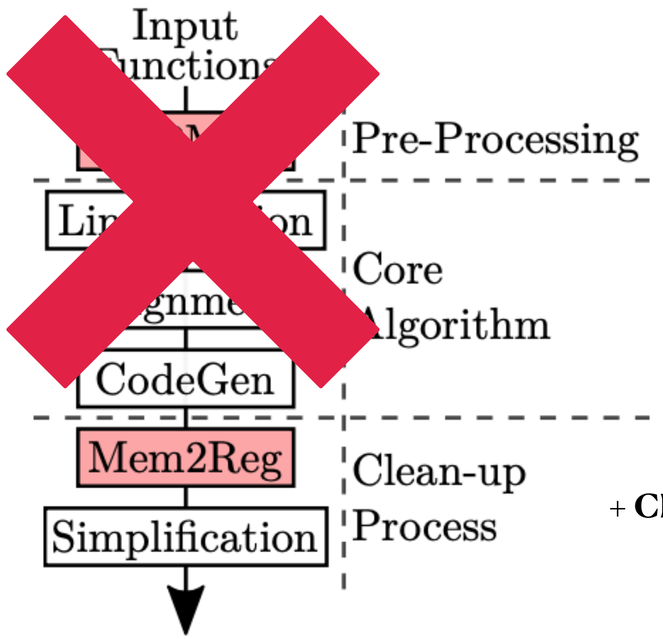


What is the study about?

Before (FMSA)



SalSSA



+ CFG

Table of Content

Advantages

- Lots of pictures, figures and code samples
- Text formatting
- LLVM IR - is widely known
- Explicit contribution and clear motivating example
- Comprehensive evaluation

Disadvantages

- No formal proof
- Tool or program is absent or hidden
- Narrow scope (only for LLVM IR)
- SalSSA is not a separate IR

Conclusion

Accept