GoGo

A Go compiler written in Go (... and assembly)

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Responsibilities

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Scanner	I/O library
Parser	Memory/string management
Multiplication/Division	Addition/Subtraction
Conditionals	Assignments
Loops	Address/offset calculcations
Test suite	Symbol table

What is GoGo?

- A self-compiling Go compiler
- Input language: A subset of the Go language
  - C-like syntax with additional keywords
  - Reduced feature set through EBNF
- Output language: Plan9 x64 assembly
  - Output in text form, not binary form
  - Requires Plan9 assembler for binary form
  - Requires Plan9 linker for ELF executables

What is so special about GoGo?

- Advanced string management
  - More memory allocated than initially needed
  - "Spare" memory for future concatenations
  - Drastically reduces memory consumption
- Implementation of pointers
  - Implicit dereferring on structure access
  - No explicit dereferring possible (EBNF)
  - Address operator (&) complicates assignments
- Explanatory comments in assembly output
  - Source file and line included
  - Option to disable (debug level reduction)
  - More information in live demo

Demo

- Recursive self-compilation
- Advanced Fibonacci example