

C Extensions for Python: Why and How

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Python

- High Level Programming Language
- Interpreted
- Console
- Garbage collector
- Great LA, math, and science libraries
- Iteration → Slow
- CPython built in C

C/C++

- Low Level Programming Language
- Compiled
- No automatic memory management
- Fast
- Statically typed

Static Types

- int
- double (Python float)

C Compilers

- gcc
- clang
- msvc

A quick aside about language speed

- C code != fast code
- Experience matters
- Less hand holding
- “With great power comes great responsibility.”
- Have a need for it

When to drop into C

- Iteration is slowing you down
- Target with tools like RunSnakeRun
- Spend time investigating before diving in

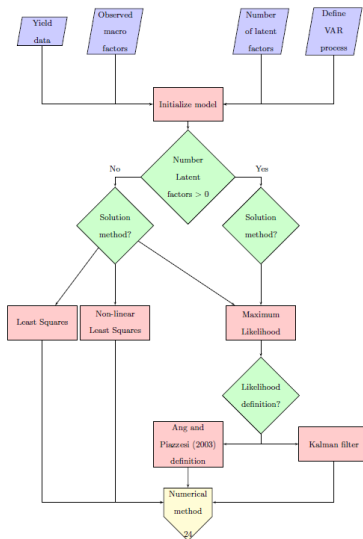
Basic Example

My Own Use Case: Dissertation

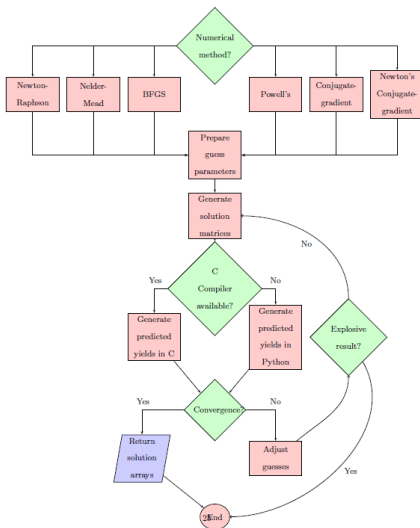
- Affine Term Structure Models
- Non-linear with many unknown parameters
- Iteration a huge part
- Physics/Dark Matter

Logic of the software

Figure 5: Software logic



Logic of the software



How I Develop

Vim
Linux

Questions/Discussion