

# CST Part IB Supervisions

## Example Sheet 5

Petar Veličković

Lent Term 2016

### Compiler Construction

I note that memory management has been covered in the course instead of the material on OOP representations and exceptions. Therefore I provide three questions on GC essentials.

1. Explain the positive and negative aspects of *manual memory management*.
2. Provide an overview of the *reference counting method* and contrast it with the *mark & sweep*, *copying* and *generational* approaches to garbage collection.
3. Suggest a faster alternative to garbage collection, which is still automated (i.e. the user does not need to worry about explicitly deallocating memory), but it does not require a separate process running in the background (i.e. everything is handled within the compiled code of the program). Does your scheme impose any constraints on the programmer?

### Databases

To me it seems that you've handled the initial exercise sheet quite well. As promised, we finish off Databases with an assortment of recent exam questions (leaving out 2015 for obvious reasons). You'll notice that Heath's rule is in particular a very common component in the questions, so it is well worth it to make sure you're absolutely comfortable with using it before the exam. You do not need to re-do parts of questions if they reappear several times.

1. Attempt the exam questions from 2011 (2011p4q5, 2011p4q6).
2. Attempt the exam questions from 2013 (2013p4q5, 2013p4q6).
3. Attempt the exam questions from 2014 (2014p4q5, 2014p4q6).

## Practical work

No further practical work is expected—please submit the code generator for next week, and be happy, for you have just built a fully functional compiler! :)