Revision

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How to prepare for the exam?

- Make sure you understand the material covered in
  - slides on QM+ for lectures and tutorials
  - exercises and their solutions
  - programming assignments
  - cool reference manual
- **Mock exam** solve and compare to model answers
- Past exam
- How to get more help?
  - use the forum on qm+
  - office hours: email me to arrange

What is **not** for the exam?

- Bottom-up parsing algorithms
- Tail recursion
- Register allocation via graph coloring
- Static vs dynamic scoping
- Cool operational semantics rules
  [section 13 of Cool Reference Manual]

Structure of the exam

- Answer ALL FOUR questions

Question 1 [30 marks] Parsing
Question 2 [20 marks] Classify events
Question 3 [20 marks] Concepts in compilers
Question 4 [30 marks] Modify Cool Compiler

Examples: parsing

- Is this grammar ambiguous? Justify your answer.
- Is this grammar LL(1)? Justify your answer.

- Construct Nullable, First and Follow sets.
- Construct LL(1) parsing table.
- Use left-factoring to convert this grammar to an equivalent LL(1) grammar.

Examples: modify cool compiler

- Add new control flow constructs
  - **repeat** expr **until** expr **teaper**
  - **for** i ← [0..n] **do** expr **rof**
  - **break**
  - **continue**
  - **goto**
  - **exceptions**
  - **switch**
- Add data types: records, arrays
- Change OO features
  - inheritance
  - interfaces / abstract / virtual