

Review questions for final

Functional programming

1. What is a side effect, and why do functional languages not have them?
2. Give an example of how control flow is different in functional languages (particularly in Haskell). What type of statements in standard programming languages are not allowed in functional languages?
3. What is a higher order function? What is a first class object?
4. How is I/O accommodated in functional programming languages, since it is pretty much purely based on side effects?
5. What is a functor in Haskell?
6. How are types different in Haskell? Describe its type classes, and how they are different from object oriented classes.
7. Be prepared to code Haskell functions, at the level of one of our homework assignments.
8. What types of tools from functional programming are starting to show up in languages like Python and C++, and why are they being increasingly used there?
9. How are the tools in Python or C++ different from a more traditional functional language, like Python or Lisp?
10. Why do the more extreme proponents of functional programming object to structured paradigms? List a few examples from your reading on the subject (for that last essay).

Prolog

11. List a few applications of prolog, or things that it can do well.
12. What is unification, and how does Prolog attempt to do it?
13. What is a functor in Prolog?
14. How is a variable represented in Prolog? How are clauses formed?
15. Does the ordering of the clauses in a database matter in Prolog? Why or why not?
16. What is the cut (!) in prolog?
17. Again, be prepared to write or expand a short prolog program, at the level of a single homework question or one of our examples from class.

COBOL

18. Name one place COBOL is still in use, and give several reasons.
19. What are the principle strengths and weaknesses of COBOL?
20. How are COBOL programs organized?

Educational Languages

21. What are some of the major innovations that show up in educational programming languages?
22. What are a few programming languages that have been developed for teaching purposes, and what are some of their strengths and weaknesses?