University of Virginia 5 December 2011
cs1120: Introduction of Computing
Explorations in Language, Logic, and Machines

Class 41: The Cake of Computing!

Remaining Schedule

- **Monday, 5 December (7:59pm):** PS8 Final Submissions due
- Ivan will hold office hours on Wednesday (7 December) from 10 – 11:30am and on Thursday (8 December) from 4 – 5:30pm in Rice 530. He will not answer specific questions on the final, of course, but may be willing to answer questions about problems on Exam 2, exercises in the course book, or examples from class. These are the only office hours this week (Dave is out of town the rest of the week, but is available right after class today).
- **Monday, 12 December (1:00pm):** Final Exam due

Presentations

Spencer "Reid" Moseley: *Mutable and Immutable Cake*

Megan Dunne and Jamie Miller: *Turing Machine Cake Balls*

Emily McClure and Margaret Neterval: *Leslie Valiant Cake*

Sarah Cole, Odette Kassar, Hannah Beattie, Irma Corado: *The UNO Grammar Game!*

Julia Dangtran, Deidre Regan, Samah Hassan, Deeksha Kola: *A Wonderful Computing Christmas*

Janie Willner, Chi Zhang, Jordan Chandler: *Storybook*

Where to Go From Here

> *I think that it's extraordinarily important that we in computer science keep fun in computing. When it started out, it was an awful lot of fun. Of course, the paying customer got shafted every now and then, and after a while we began to take their complaints seriously. We began to feel as if we really were responsible for the successful, error-free perfect use of these machines. I don't think we are. I think we're responsible for stretching them, setting them off in new directions, and keeping fun in the house. I hope the field of computer science never loses its sense of fun. Above all, I hope we don't become missionaries. Don't feel as if you're Bible salesmen. The world has too many of those already. What you know about computing other people will learn. Don't feel as if the key to successful computing is only in your hands. What's in your hands, I think and hope, is intelligence: the ability to see the machine as more than when you were first led up to it, that you can make it more.*
> Alan Perlis, quoted in Abelson & Sussman, *Structure and Interpretation of Computer Programs*

Although cs1120 has striven to be consistent with Perlis' spirit, when you fly in an airplane, put your money in a bank, get LASIK eye surgery, or live near a nuclear power plant, you would be worried if the people who programmed those things agreed with Alan Perlis that their job was not to make then "error-free". If you want to learn how to make robust programs, take *CS2110: Software Development Methods* in the spring. This courses focus on engineering, not computer science. That means the course is mostly about ideas and methods for building programs that behave reliably under constraints of cost and time (how long does it take to get the program working, and how expensive will it be to change it). The ideas and techniques you learn from cs2110 will enable you to think about design more clearly (whether of software, or something else), and will lead you to build more useful and exciting programs than you would without them.

If you would like to go into more depth on theoretical computer science, including questions like the power of different computing models and what problems can and cannot be solved by computers in a reasonable amount of time, take *cs3102: Theory of Computation*. (There is a prerequisite, *cs2102: Discrete Math* for this course, but it may not be necessary if you have sufficient math background.)

If you think the Assistant Coaches are the most awesomest people ever and would like to be one for a future cs1120, talk to me about being an assistant coach for a large-scale on-line external course that may be developed over the next year.

If you are interested in research in computer security or you have your own idea for and interesting project, talk to me about opportunities in my research group (see http://www.jeffersonswheel.org).

If you would like to understand better how music, art, and logic use recursive definitions, read Douglas Hofstadter's fascinating and compelling book, *Gödel, Escher, Bach: An Eternal Golden Braid*.

If you want to understand how the Internet is governed and what Jefferson would think about it, read David Post's *In Search of Jefferson's Moose: Notes on the State of Cyberspace.*

If you'd rather just look at pictures, *try Logicomix: An Epic Search for Truth* by Apostolos Doxiadis and Christos Papadimitriou.

Course Evaluations

On the Course Pledge, you signed:

> **I will provide useful feedback.** I realize that cs1120 is an evolving course and it is important that I let the course staff know what they need to improve the course. I will not wait until the end of the course to make the course staff aware of any problems. I will provide feedback either anonymously or by contacting the course staff directly. I will fill out all course evaluation surveys honestly and thoroughly.

Please remember this and fill out the official course survey. If you are willing to provide more detailed feedback on any aspects of the course (including the course book), I am happy to buy you coffee and a bagel or Turkey chilli bowl to do this.

Some of you also checked the box including:

> *If I receive a free printed book, I agree not to resell it. I will also provide some useful feedback or publicity to the author. This could be done by posting a review at amazon.com, posting or commenting at Hacker News or some other site, or by sending email with comments or suggestions to the author.*

Many of you have already provided useful comments both to me and to the ElevenLearning folks, which are much appreciated. Sadly, though, there are still no amazon.com review for my book! Your amazon.com reviews is not required, of course, but would be much appreciated!