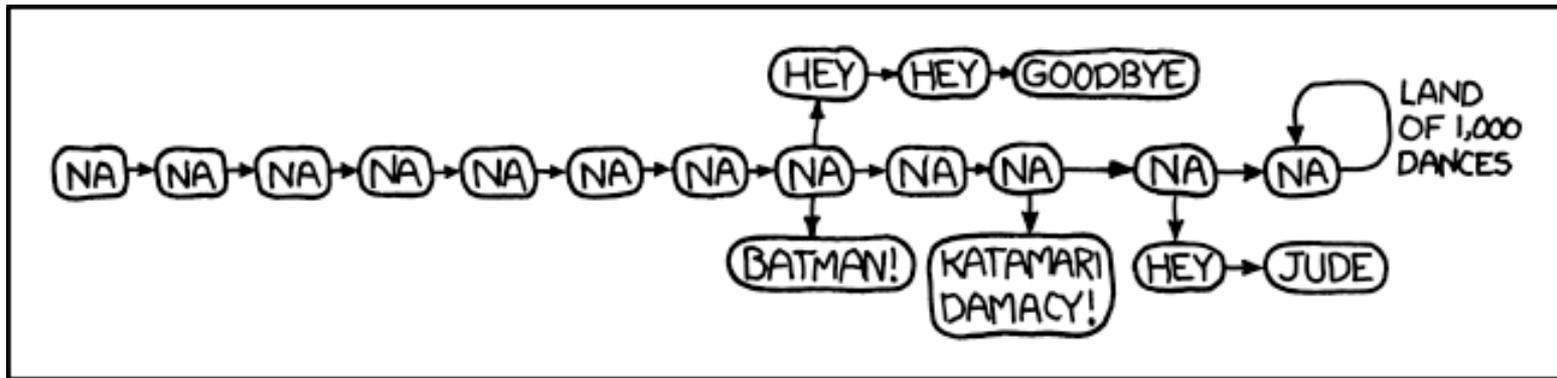# Goodbye, world!

I'll give you time to fill out evals at the end – please wait until I'm out of the room!

Major themes

- Abstraction
  - Leverage existing components without understanding their details
  - Create components that can be used as black boxes

- Recursion
  - Reason about problems in terms of self-similarity
  - Write very short code to achieve complex behaviors

- Algorithm analysis
  - Scalability and growth
  - Tradeoffs between implementations

- Beauty

Leveraging existing code

- Accessing Facebook data
  - http://restfb.com/

- Processing language
  - http://nlp.stanford.edu/software/

- Building games with physics
  - http://jbox2d.org/

- Processing biological data
  - http://biojava.org/wiki/Main_Page

Using the restFB API

- Add the restfb jar to your build path
  - In Eclipse, right click on your project > properties
  - In Java Build Path, Add JARs...

- Create Facebook app (https://developers.facebook.com/apps)

- In your browser, request the pages described here to obtain an access token

More to CS than programming

- Mind-controlled robots
  - http://www.youtube.com/watch?v=TQ7EOpPNQyw

- Muscle-controlled interfaces
  - http://www.youtube.com/watch?v=pktVSTwC8qo

- 3D models from pictures
  - http://www.youtube.com/watch?v=25Yifq70elY

- Animation
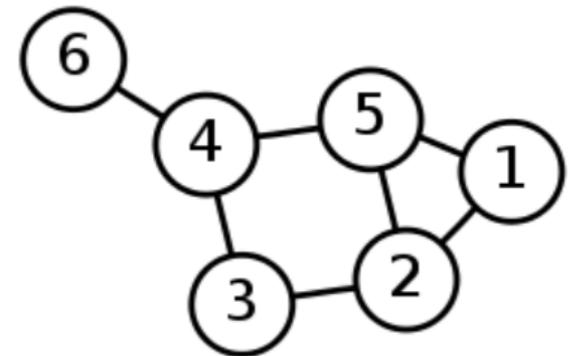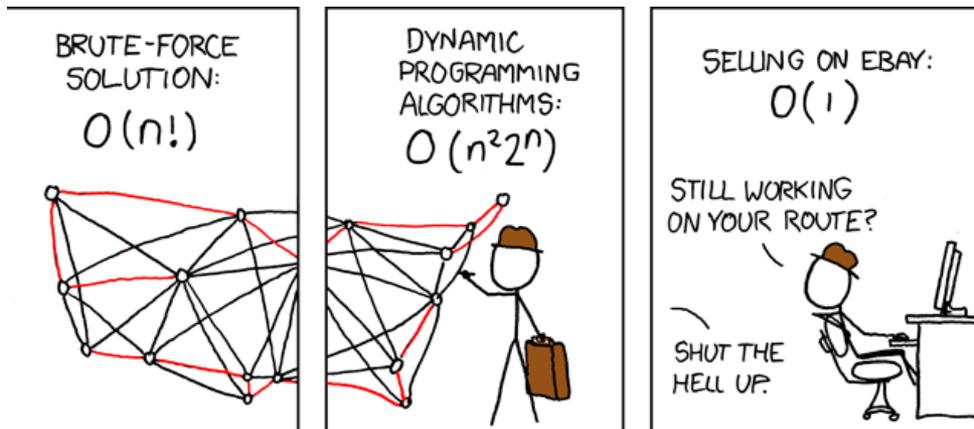 - http://www.youtube.com/watch?v=b4kkPlLdMvI

Theory of computation

- languages, grammars, and automata

- computational complexity and intractability
  - Big-Oh
  - polynomial vs. exponential time
  - P = NP?

?

- graph theory
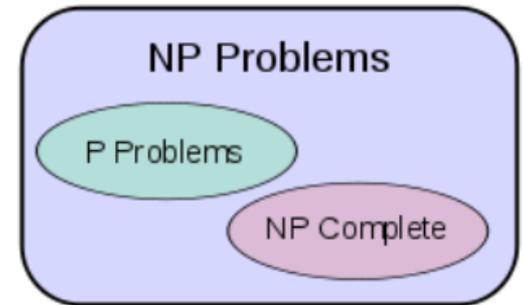
What's next?

- CSE non-majors
  - CSE 373: Data Structures and Algorithms
  - CSE 374: Programming Concepts and Tools (C/C++, Linux, ...)
  - CSE 190M: Web Programming
  - CSE 131: Digital Photography
  - CSE 460: Animation Capstone (open to all majors)
  - INFO, AMATH, DXARTS, ...

- CSE majors
  - CSE 332: Data Abstractions (Data Structures and Algorithms)
  - CSE 311: (Mathematical) Foundations of Computing
  - CSE 331: Software Design and Implementation
  - CSE 341: Programming Languages
  - CSE 344: Intro to Data Management (and databases)
  - CSE 351: Hardware/Software Interface