From grammars to regular expressions

- Grammars are used
  - In computer science
  - In English, in Spanish, in all natural languages
  - In genomics, grammar of DNA?

- Parsing languages
  - Computer and other, how do we process statements?
  - How do we generate statements that are "correct"?

- Regular Expressions (aka regex)
  - Powerful application of theory to practice

Grammars and Regex

<integer> ::= <digit> | <digit> <integer>
<digit> ::= 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9

- Why is 1234 a valid integer? Is 01234 a valid integer?
  - How could we avoid leading zeros?
  - What about a floating point number?

- Regular expressions: mathematical and applied
  - Create regexes from . + * ( | \\s
  - Understanding how these work best done by example

What good are regular expressions


Robert Tarjan

- Graph algorithms
  - LCA, Connected Components, Planarity, persistence
  - Turing Award, 1986, with Hopcroft; Nevanlinna Prize, 1983; Kanellakis Theory/Practice, 1999

- Interaction is very important and having cooperative spirit. One of the greatest joys of being a professor is having graduate students... it's very motivating because you've got people whose minds are fresh and open and eager to learn: Shasha, Out of Their Minds