

CISC 4090 Theory of Computation

Applications

Professor Daniel Leeds
dleeds@fordham.edu
JMH 332

What have we learned?

Finite State Automata / Regular Expressions
Push Down Automata / Context Free Grammars
Turing Machines
Decidability
Complexity – P/NP

Finite state automata

- Power in simplicity
- Programming for simple machines

Regular expressions

- Searching file systems/text databases

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Context Free Grammars

Natural language processing

- The boy touched the girl with the flower
- The boy touched the girl with the flower

Compiler design

- `cost += computePrice(orderVec)*tax;`

Turing machines

Programs as data

What is computable?

- What problems are “impossible”



P/NP

- What problems are hard?

