CPSC 421/501 Sept 9, 2021

(1) How much damage can one fool inflict on a village of otherwise wise people?

(2) How much good can one wise person do in a village of otherwise fools?

- Source: Chinese sages, African wisdom, etc.

SUMMARY OF CPSC 421/501

- How much damage can one subroutine that attemps to solve
  - the halting problem
  - SAT or 3COLOUR

do in a program of otherwise $O(n^2)$ (quadratic time) subroutines?

You've probably heard this one in some form:

- To err is human, but to really foul things up you need a computer.

(Seen on a poster with Kermit the Frog, involving toilet paper running amok)

Course website!

https://www.cs.ubc.ca/~jf/courses/421.F2021/index.html

Grading:

h = homework
m = midterm
f = final

421:

$(10\%)\max(h, m, f) +$

$(35\%)\max(m, f) + (55\%) f$

501:

(~~80~~ %)(421) + (~~20~~ %) Presentation

X prob 80, 90 $\quad$ $1 - X$

Subject -- CPSC 421/501

email: jf@cs.ubc.ca

Individual Homework: 1 person

Group Homework: ≤ 4 people

Unofficial — :

You will pass (50%) if you can ① write a simple DFA algorithm
② " " " Turing Machine "

BUT YOU MUST EXPLAIN HOW THEY WORK

First 2 weeks we follow a handout:

"Uncomputability & Ruining the Surprises in CPSC 421/501"

=

"Paradoxes" sometimes "Theorems"

Paradoxes

① { I am lying (right now).
  { This statement is a lie.

② "the smallest positive integer not defined by a phase in English of one thousand words or fewer"

17 words

? ? ? ? ?

Say this number is

$n = 12754629813 8 \ldots 9$??

10:04 am → 10:09 am

The Berry paradox

due to Russell

The handout for 1st two weeks

- Paradoxes
- There exist "unsolvable problems"
- The halting problem or the acceptance problem is undecidable

involve "self-referencing" + "negation" = (Sid's remark)

T-shirt:

"You are not reading this"

"This T-shirt does not reference itself"

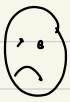
Russell's paradox: Let $S = \{ T \mid T \notin T \}$

"Let S be the set of sets that do not contain themselves."

Is $S \in S$ (does S contain itself?)

if yes, $S \notin S$

if no, $S \in S$



Common resolution! gives a "class" {the ___ of all sets s.t. blah}

Leslie writes about (and only about)
those who do not write about themselves.

Does Leslie write about { his/her self / themself / themselves } ?

If yes :
no :