

# CIT 596 Recitation, Week 10

Honglin Zhang

Apr 4, 2014

How much do you know about  
JavaScript?

# A.k.a. part of dark corners of JavaScript

- ▶ JavaScript test

# Pumping lemma for context-free languages

If  $A$  is a context-free language, then there is a number  $p$  where if  $s$  is any string in  $A$  of length at least  $p$ , then  $s$  may be divided into five pieces  $s = wvxyz$  satisfying

- ▶  $\forall i \geq 0, uv^i xy^i z \in A$
- ▶  $|vy| > 0$
- ▶  $|vxy| \leq p$

[Exercise] @Hopcroft01 [p.279] example  
7.20

Show that  $L = \{0^i 1^j 2^i 3^j \mid i \geq 1 \text{ and } j \geq 1\}$  is not context free.

[Exercise] @Hopcroft01 [p.280] exercise  
7.2.1



Show that  $L = \{0^i 1^j \mid j = i^2\}$  is not context free.

[Exercise] @Hopcroft01 [p.280] exercise  
7.2.1

Show that  $L = \{a^n b^n c^i \mid i \leq n\}$  is not context free.

[Exercise] @Hopcroft01 [p.281] exercise  
7.2.4

Show that  $L = \{0^i 1^j 0^k \mid j = \max(i, k)\}$  is not context free.

[Exercise] @Hopcroft01 [p.280] exercise  
7.2.1

Show that  $L = \{0^p \mid p \text{ is a prime}\}$  is not context free.