Obscure Python Implementations

What do we talk about when we talk about Python?

Ans: Usually CPython

```
python3
subil@subil-machine:~ $ python3
Python 3.5.2 (default, Nov 17 2016, 17:05:23)
[GCC 5.4.0 20160609] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> print("hello, world!")
hello, world!
>>>
```

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Download the latest source release

Download Python 3.5.2 Download Python 2.7.13

Wondering which version to use? Here's more about the difference between Python 2 and 3.

Looking for Python with a different OS? Python for Windows, Linux/UNIX, Mac OS X, Other

Want to help test development versions of Python? Pre-releases

Looking for a specific release?

Python releases by version number:

Release version	Release date		Click for more
Python 2.7.13	2016-12-17	Download	Release Notes
Python 3.4.5	2016-06-27	Download	Release Notes

Scripts Partially Allowed, 2/4 (python.org, ajax.googleapis.com) | <SCRIPT>: 8 | <OBJECT>: 0 Options...

Language Specification vs Implementation

Specification: Set of rules and concepts about the language

Implementation: A computer program that that implements those rules

First: The not-so-obscure Python Implementations

CPython

- Reference implementation
- Developed by Guido van Rossum and Co
- 2 major versions: Python2 and Python3
- Written in C
- You can write C extensions

Jython

- Written in Java
- Runs on the JVM
- Can interoperate with Java
- Useful scripting language for the JVM

Jython

```
1
2 #importing java.util.Random
3
4 from java.util import Random
5
6
```

IronPython

- Written in C#
- Runs on the CLR (the .NET framework)
- Similar goals as Jython
- Can use .NET assemblies

IronPython

```
 1
 2 # loading assemblies is done using clr module
 3 import clr
 4
 5 clr.AddReference('System.Windows.Forms')
 6
 7 # Names can be accessed as python imports
 8 # after an assembly is loaded
 9 from System.Windows.Forms import Application, Form
10
11
```

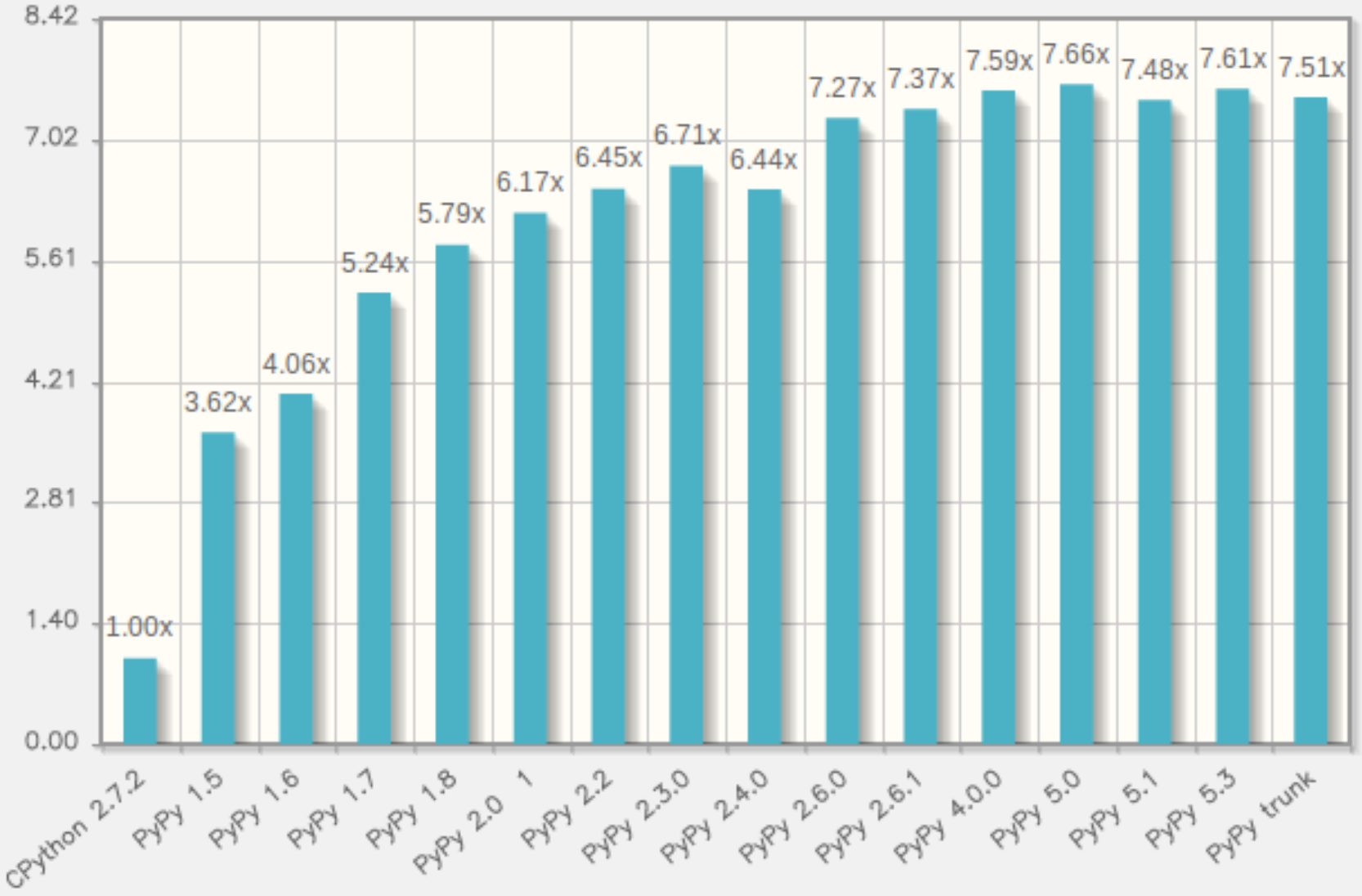
PyPy

- A very fast implementation of Python
- Much faster than CPython
- Uses a JIT compiler
- Written in a typed, restricted *subset* of Python, called **RPython**

PyPy

- So basically its Python written in another (albeit restricted) implementation of Python
- And somehow its *faster* than Cpython!
- Explaining this probably requires another talk

PyPy vs CPython



This is a picture of Hagrid

(for no reason)

Now For the obscure Python Implementations

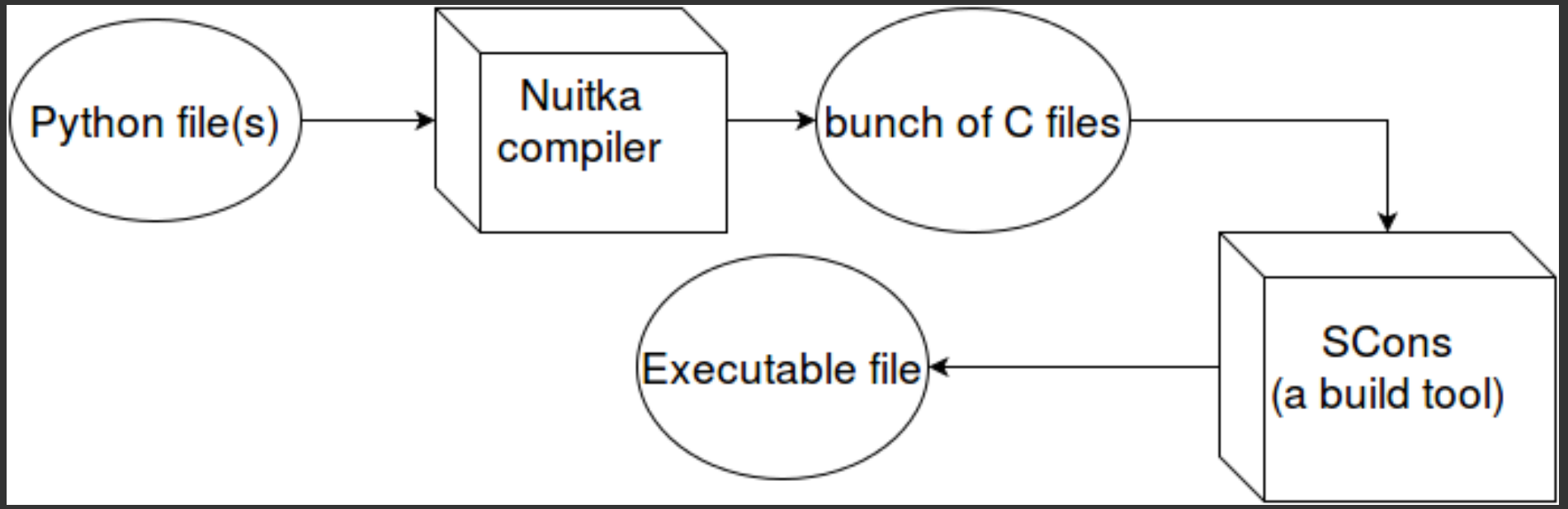
Nuitka

- A Python compiler
- Fully compatible with Python 2.6, 2.7, 3.2 – 3.5
- Aims to be a drop-in replacement for CPython

Uses for Nuitka

- Can create standalone executables
  - It just works
  - Give your program to someone else
- Create extension modules
  - Create fast C extensions without needing to use C!

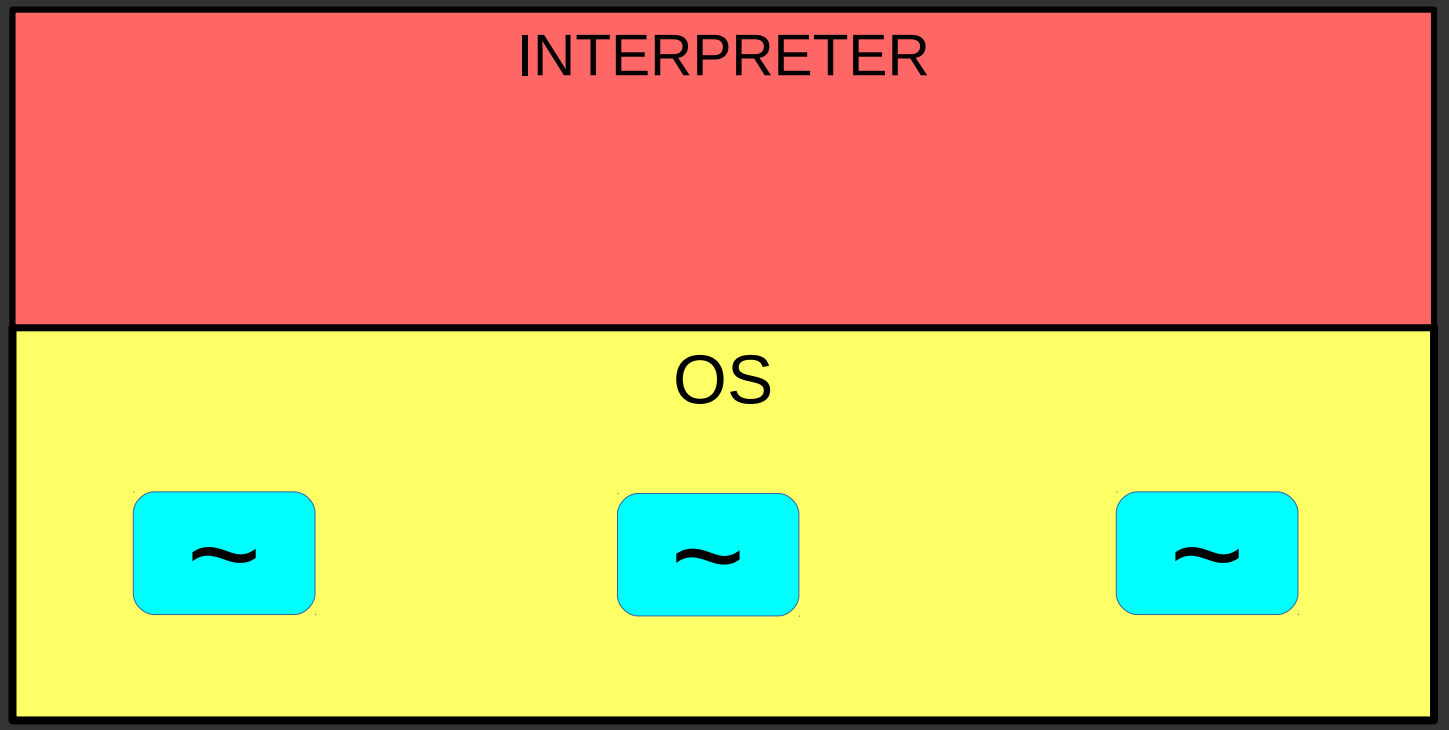
Rough overview



DEMO

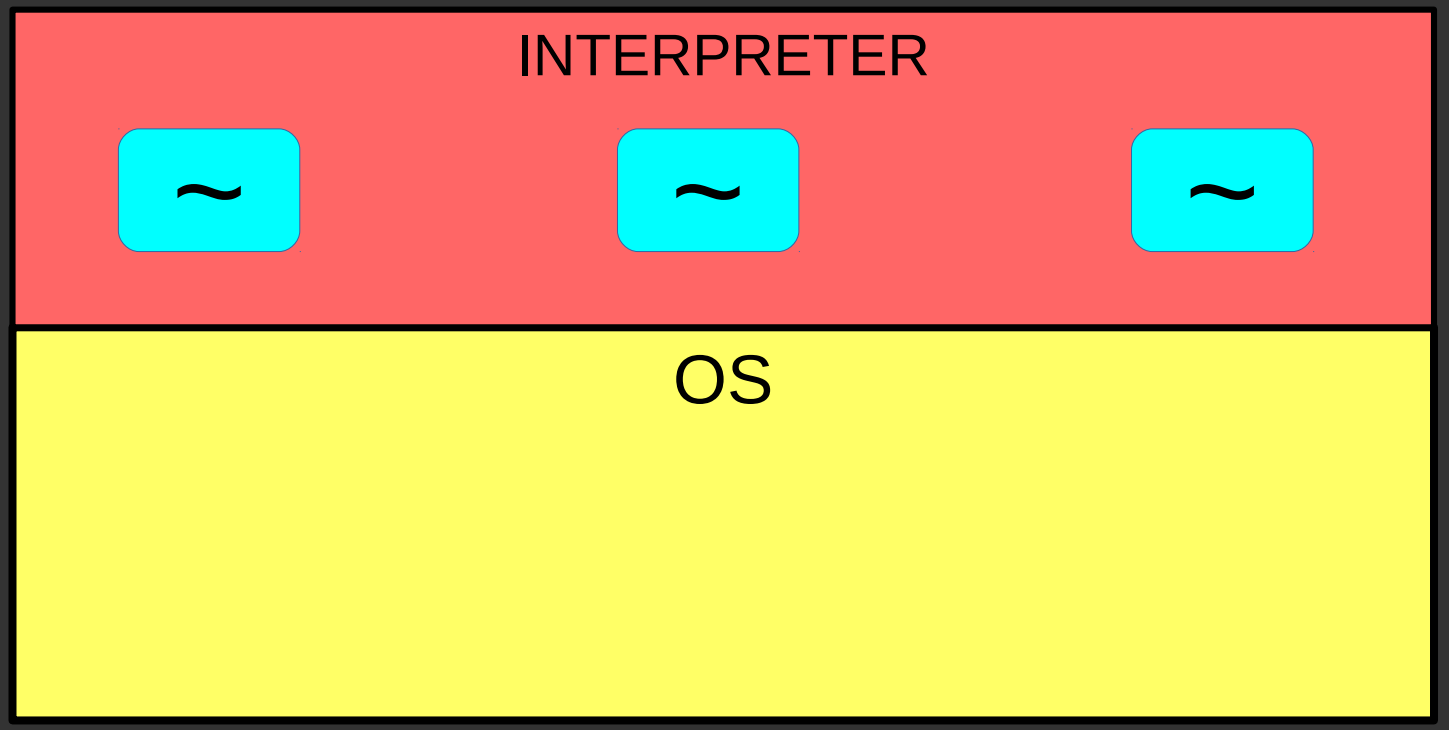
Stackless Python

- Provides microthreads
  - Managed by the interpreter



Stackless Python

- Provides microthreads
  - Managed by the interpreter
  - Less overhead than OS threads



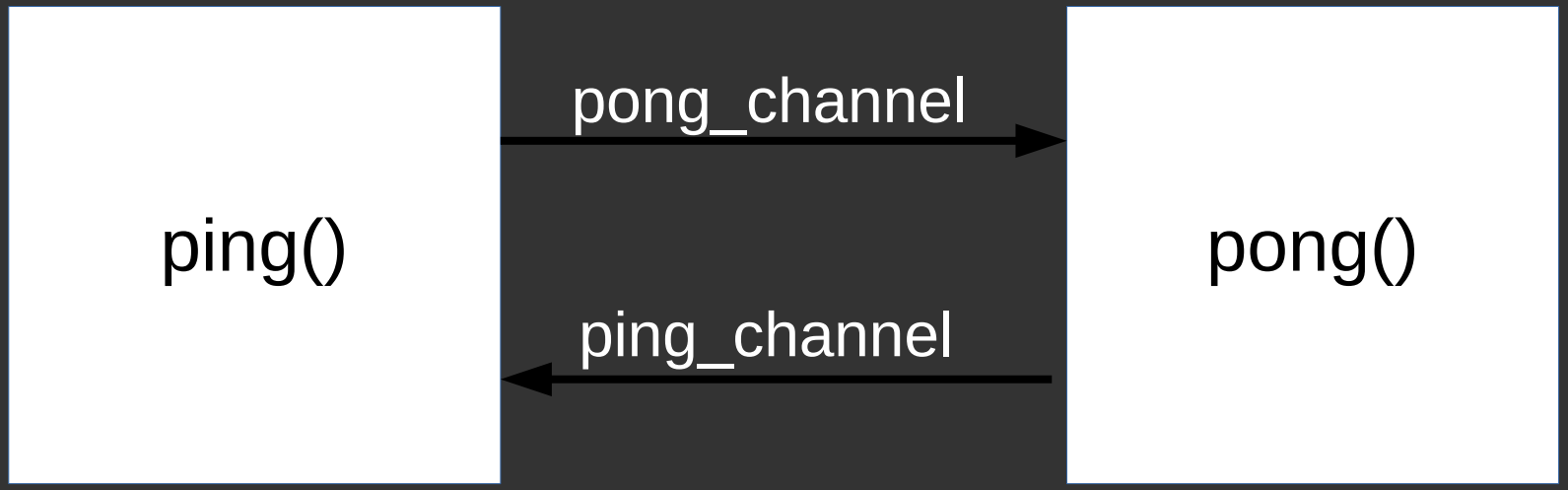
Stackless Python

- Doesn’t use the C call stack
- Uses heap memory instead

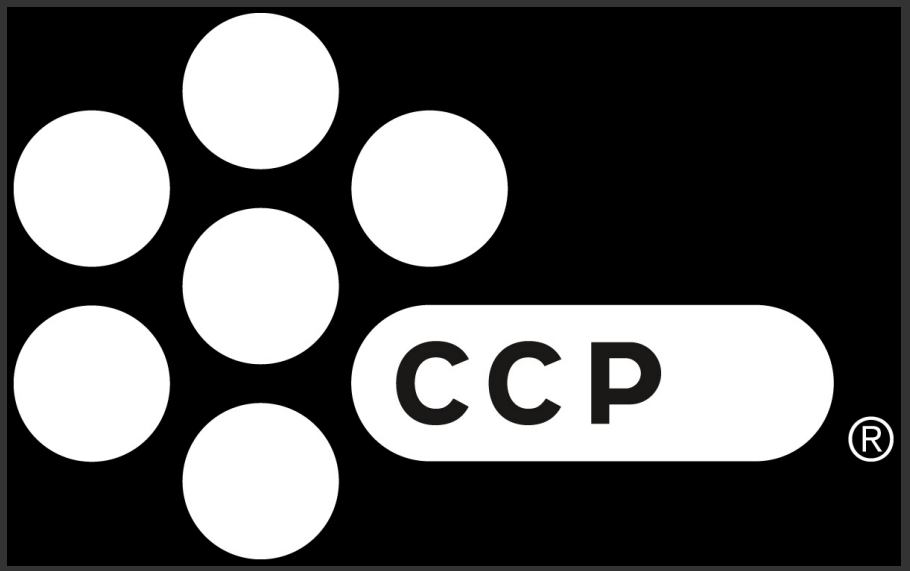
What does this mean?

Stack

What Stackless Python does



Who uses it?



Who uses it?

Brython

- Stands for “Browser Python”
- It’s a JS library to allow Python for scripting on the web
- Comes with a built-in DOM API

Brython

Brython disadvantages

- Compiler doesn’t optimise
- No established integration to existing web dev workflows (yet)
  - They’re working on it

Thank you!

Questions?

Every question gets a Harry Potter meme!

Colgate
MaxFresh
L'ORÉAL
PARIS
Because you're worth it.

RON, HOLD ON!
are those shoes on sale?

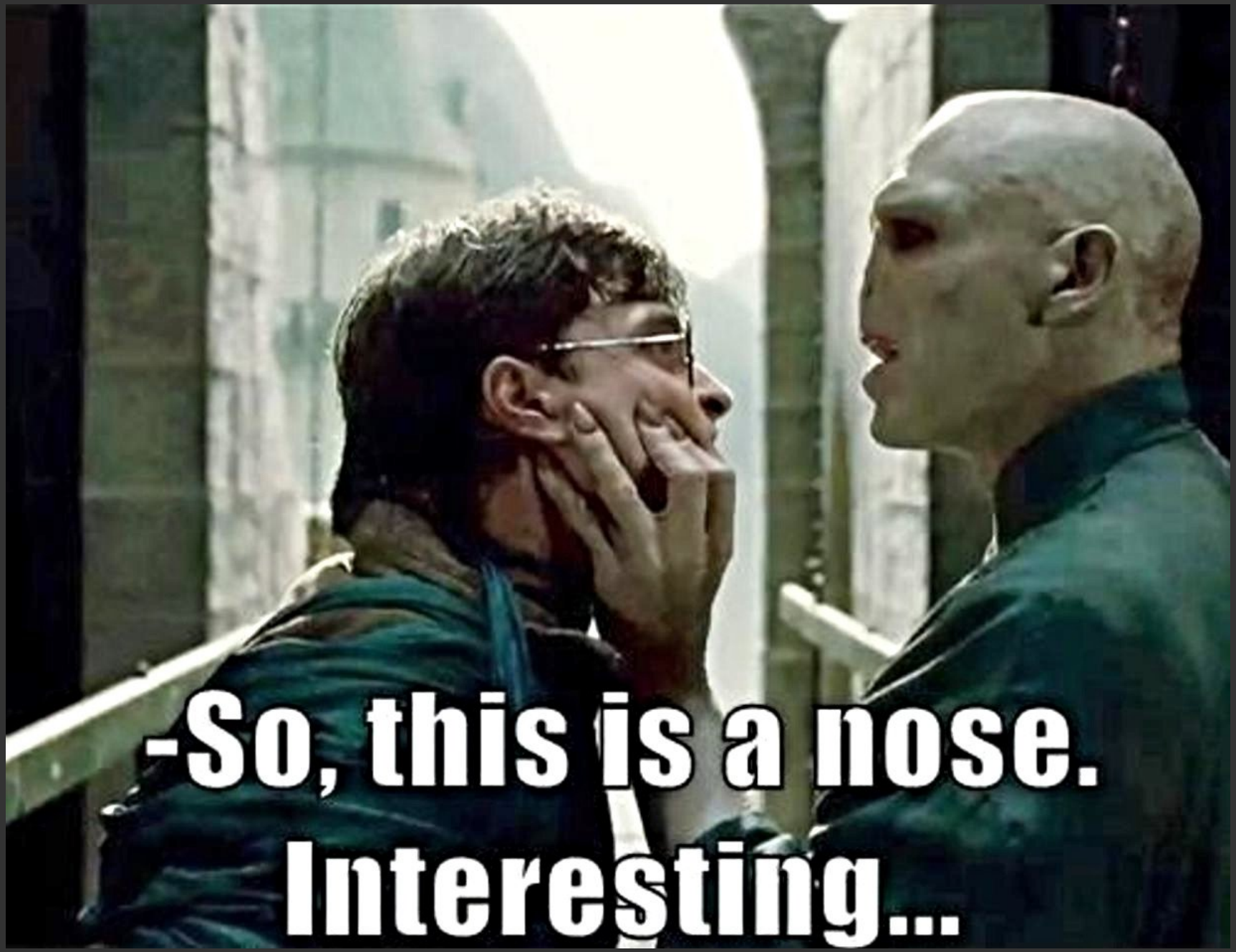
YOU KNOW NOTHING OF THE DARK ARTS...
AND CRAFTS
quickmeme.com

SNAPES ON A PLANE

Slytherin to a theater near you.

come-alongmerlin ravenclav Source: im-already-bro…

59,325 notes


-So, this is a nose.
Interesting...

SIMBA!

Find slides at

github.com/dragsubil/talks

MERRY CHRISTMAS