Graphical Objects

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from myro import *

def hello():
    speak("Hello")

def goodbye():
    speak("Goodbye")

def doit(list):
    for function in list:
        function()

>>> doit([hello, hello, hello, hello, hello, hello, goodbye])
Computability

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You can't write a program that will determine whether or not another program will halt.
Colors

There are $256 \times 256 \times 256$ possible colors in Myro.

16,777,216

About 17 Million Colors
Pictures

```python
>>> pic1 = takePicture()
>>> pic2 = makePicture(WIDTH, HEIGHT)
>>> pic3 = makePicture("http://www.100xr.com/100_XR/Artists/R/Regina_Spektor/Regina.Spektor-2004.jpg")
>>> show(pic3)
```
def copy(pic1):
    pic2 = makePicture(getWidth(pic1), getHeight(pic1))
    for pixel in getPixels(pic1):
        setPixel(pic2, getX(pixel), getY(pixel), getColor(pixel))
    return pic2
What if you wanted to control two or more robots?
How do we currently control a robot?

forward(1, .5)
turnLeft(.7, 2)

How could we indicate which robot we want to move?
One possible way of controlling more than one robot:

```python
robot1 = Robot("Garth")
robot2 = Robot("Miley")

forward(robot1, 1, .5)
turnLeft(robot2, .7, 1.2)
```
forward() would have to know about many different kinds of Robots
Introducing “Objects”

- Objects are “things” (often nouns) in computing
- They know how to do things (verbs) and have attributes (properties)
- We can refer to properties and tell objects to do things by using the DOT (period):
  - robot.turnLeft(1, 2)
  - robot.name
- Verbs are just functions, but we call them “methods”