

Interactive: Cue Combination

This demo shows how cues combine weighted by their uncertainty as their variances change.

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In [1]: %matplotlib inline
import matplotlib.pyplot as plt
import numpy as np
import matplotlib.mlab as mlab
import math

def plotGaussian(mean, std, color, width):
    x = np.linspace(-3,3,100)
    plt.plot(x,mlab.normpdf(x,mean,std), color, linewidth=width)

def CueIntegration(mean1=0, mean2=1, std1=2, std2=1):
    plotGaussian(mean1, std1, 'b', 1)
    plotGaussian(mean2, std2, 'g', 1)
    mean = mean2 * (std1**2 / (std1**2+std2**2)) + mean1 * (std2**2 / (std1**2+std2**2))
    std = (std1 * std2) / np.sqrt(std1 ** 2 + std2 ** 2)
    plotGaussian(mean, std, 'r', 2)

from IPython.html.widgets import interact
interact(CueIntegration, mean1=(0,4,0.1), mean2=(0,4,0.1), std1=(0.1,4,0.1), std2=(0.1,4,0.1))
```



