img_loading_comparison

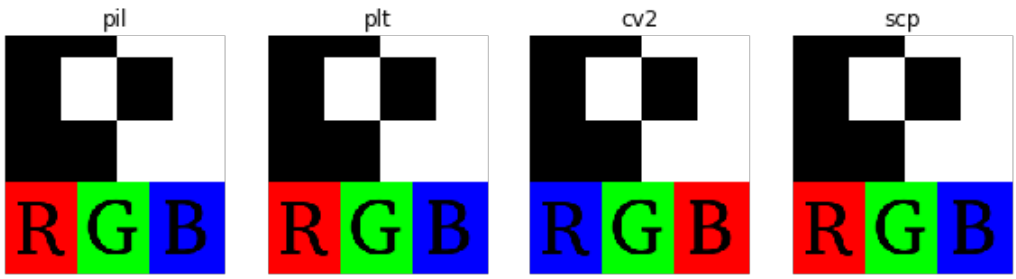
In [81]:

```
%matplotlib inline
'''
Author: Kris Gonzalez
Objective: make a simple comparison between multiple image loading programs

things to compare:
order of layers
range of values
number type
'''

import PIL.Image as pil
import matplotlib.pyplot as plt
import cv2
import scipy.misc as scp
import numpy as np

imgfile='colorCheck.png'

pil_img=pil.open(imgfile)
plt_img=plt.imread(imgfile)
cv2_img=cv2.imread(imgfile)
scp_img=scp.imread(imgfile)
```

```
/home/iki/.local/lib/python3.5/site-packages/ipykernel_launcher.py:23: DeprecationWarning: `
`imread` is deprecated in SciPy 1.0.0, and will be removed in 1.2.0.
Use ``imageio.imread`` instead.
```

In [82]:

```
# fig,sub=plt.subplots(2,2,figsize=(8,8))
fig,sub=plt.subplots(1,4,figsize=(10,3))
sub=np.reshape(sub,(4)) # goes left-right, then down
def plotme(name,arr,number):
    sub[number].set_title(name)
    sub[number].imshow(arr)
    sub[number].axis('off')

plotme('pil',pil_img,0)
plotme('plt',plt_img,1)
plotme('cv2',cv2_img,2)
plotme('scp',scp_img,3)
```

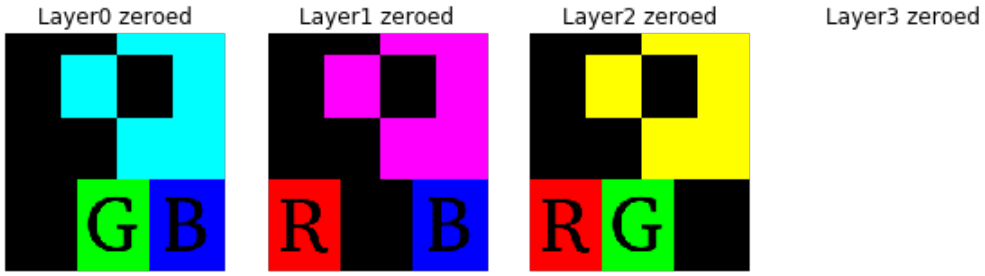


In [83]:

```
''' plot individual layers'''
fig,sub2=plt.subplots(1,4,figsize=(10,3))
# fig,sub2=plt.subplots(1,4)
sub2=np.reshape(sub2,(4)) # goes left-right, then down
print('image shape:',plt_img.shape)
```

```
def actOnLayer(arr,layer):
    im=np.copy(arr)
    im[:,:,layer]=np.zeros(im.shape[:2])
    sub2[layer].set_title('Layer{} zeroed'.format(layer))
    sub2[layer].imshow(im)
    sub2[layer].axis('off')

actOnLayer(plt_img,0)
actOnLayer(plt_img,1)
actOnLayer(plt_img,2)
actOnLayer(plt_img,3)
```

```
image shape: (221, 204, 4)
```



In [84]:

```
def printminmax(name,arr):
    p_str='{}: [{}-{}],Elem:{},\n\tArrType:{}\n'
    print(p_str.format(
        name,np.min(arr),np.max(arr),type(np.min(arr)),type(arr)
    ))

printminmax('pil',pil_img)
print('pil after conversion:')
printminmax('pil2',np.array(pil_img))
printminmax('plt',plt_img)
printminmax('cv2',cv2_img)
printminmax('scp',scp_img)
```

```
pil: [0-255],Elem:<class 'numpy.uint8'>,
        ArrType:<class 'PIL.PngImagePlugin.PngImageFile'>

pil after conversion:
pil2: [0-255],Elem:<class 'numpy.uint8'>,
        ArrType:<class 'numpy.ndarray'>

plt: [0.0-1.0],Elem:<class 'numpy.float32'>,
        ArrType:<class 'numpy.ndarray'>

cv2: [0-255],Elem:<class 'numpy.uint8'>,
        ArrType:<class 'numpy.ndarray'>

scp: [0-255],Elem:<class 'numpy.uint8'>,
        ArrType:<class 'numpy.ndarray'>
```

Across the different modules compared, these are the results:

Lib	ElemType	Range	LayerOrder	MatType
pil	uint8	0-255	RGB	PIL*
plt	float32	0-1.0	RGB	numpy
cv2	uint8	0-255	BGR	numpy
scp	uint8	0-255	RGB	numpy

*note: PIL can be easily converted