

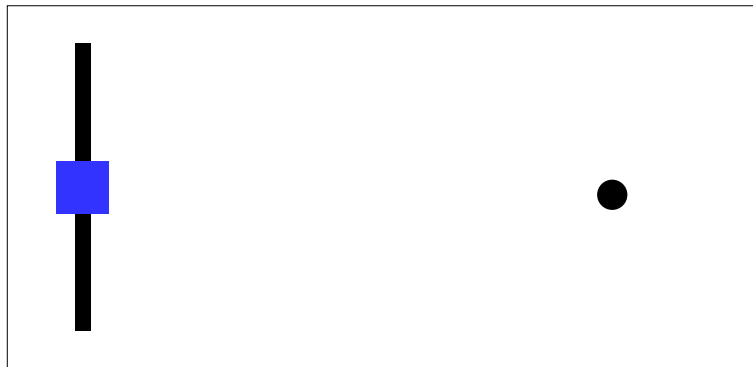
## Creative Computing II

### Ambiguity

Wednesday 6th October 2010

This lab sheet covers the blind spot, and encourages you to develop a sketch illustrating some aspect of ambiguity.

1. This part of the lab guides you in constructing a *Processing* sketch which allows you to investigate for yourself the blind spot in your eyes.
  - (a) Write a *Processing* sketch to display something like the following image, covering most of the screen (in a window of 1000×480 pixels)



```
// Works for me at a comfortable viewing distance
// on a 96dpi monitor.

size(1000,480); smooth(); background(200); noStroke();

fill(0); rect(90,50,20,380); ellipse(800,230,20,20);
fill(20,80,220); rect(65,205,70,70);
```

- (b) Run your sketch, align your position so that your right eye is in front of the blue square, and cover your left eye. Then slowly move your head towards and away from the screen. What do you observe?

*You will probably find that, at some particular distance from the screen, that the black circle seems to disappear. This only happens for that specific distance; at other distances the circle is perfectly visible. What is happening here is that the portion of the image corresponding to the circle is being focused by the eye onto the blind spot – and the brain simply makes its best guess as to what is there, essentially filling in the background.*

- (c) Alter your sketch so that the picture can be drawn the other way round (with the circle on the left). Repeat the above with the new image. Under what circumstances do you see the same effect with the new picture?

*Repeating the above steps exactly, you should find that the circle never disappears – the blind spot is only in one location for each eye, to the right of the focus in your right eye. If you repeat the above steps but with your right eye covered and left eye in front of the square, then again the circle should disappear in the rotated version, at about the same distance from the screen.*

2. This part of the lab is about constructing an interactive sketch to illustrate some aspect of visual ambiguity.
  - (a) Some of the images illustrating ambiguity shown in the lecture have the property of *bistability* – there being two equally valid (but contradictory) interpretations of the image. Select one of these images, whether from the lecture or from some other sources, and write a *Processing* sketch to display the image.
  - (b) Extend your sketch so that, when the user presses a key, the two possible interpretations of the image are made explicit, by showing the user disambiguated versions of the image.

Further Reading:

- Gregory, Richard L., *Eye and Brain: The Psychology of Seeing*, Princeton University Press (1966 [1st ed.], 1997 [5th ed.] )
- Thompson, P. (1980). Margaret Thatcher: A new illusion. *Perception*, 9(4), 483–484 (also [http://www.bbc.co.uk/bang/article\\_thatcher.shtml](http://www.bbc.co.uk/bang/article_thatcher.shtml))