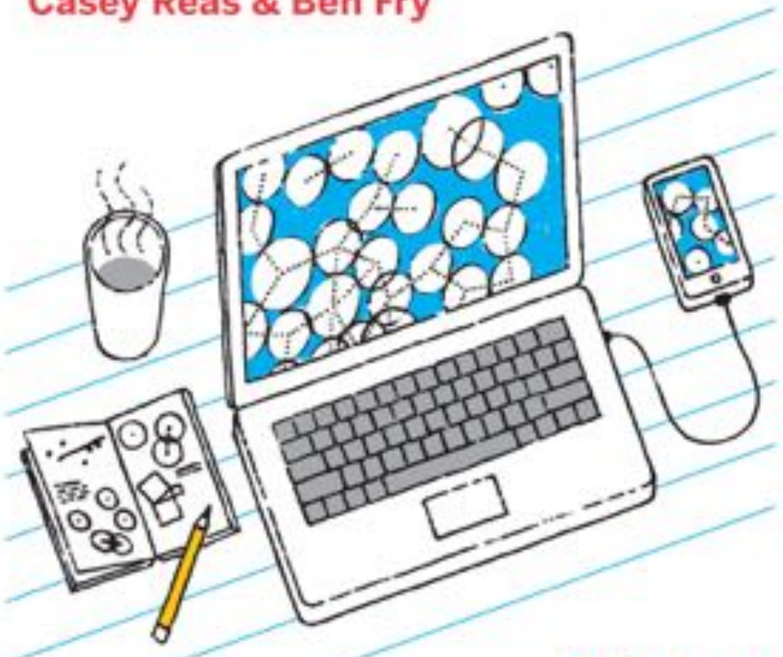
all code illustrations taken from the processing.org website +

Make: PROJECTS

A HANDS-ON INTRODUCTION TO MAKING INTERACTIVE GRAPHICS

Getting Started with Processing

Casey Reas & Ben Fry



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Open Source/Graphics Programming

Make: PROJECTS

Getting Started with Processing

Learn computer programming the easy way with Processing, a simple language that lets you use code to create drawings, animation, and interactive graphics. Programming courses usually start with theory, but this book lets you jump right into creative and fun projects. It's ideal for anyone who wants to learn programming, and serves as a simple introduction to graphics for people who already have some programming skills.

Written by the founders of Processing, this book takes you through the learning process one step at a time to help you grasp core programming concepts. Join the thousands of hobbyists, students, and professionals who have discovered this free and educational community platform.

- Quickly learn programming basics, from variables to objects
- Understand the fundamentals of computer graphics
- Get acquainted with the Processing software environment
- Create interactive graphics with easy-to-follow projects
- Use the Arduino open source prototyping platform to control your Processing graphics

Casey Reas is a professor in the Department of Design Media Arts at UCLA and a graduate of the MIT Media Laboratory. Reas's software has been featured in numerous solo and group exhibitions in the U.S., Europe, and Asia.

Ben Fry, a designer, programmer, and author based in Cambridge, Massachusetts, received his doctoral degree from the MIT Media Laboratory. He worked with Casey Reas to develop Processing, which won a Golden Nica from the Prix Ars Electronica in 2005.

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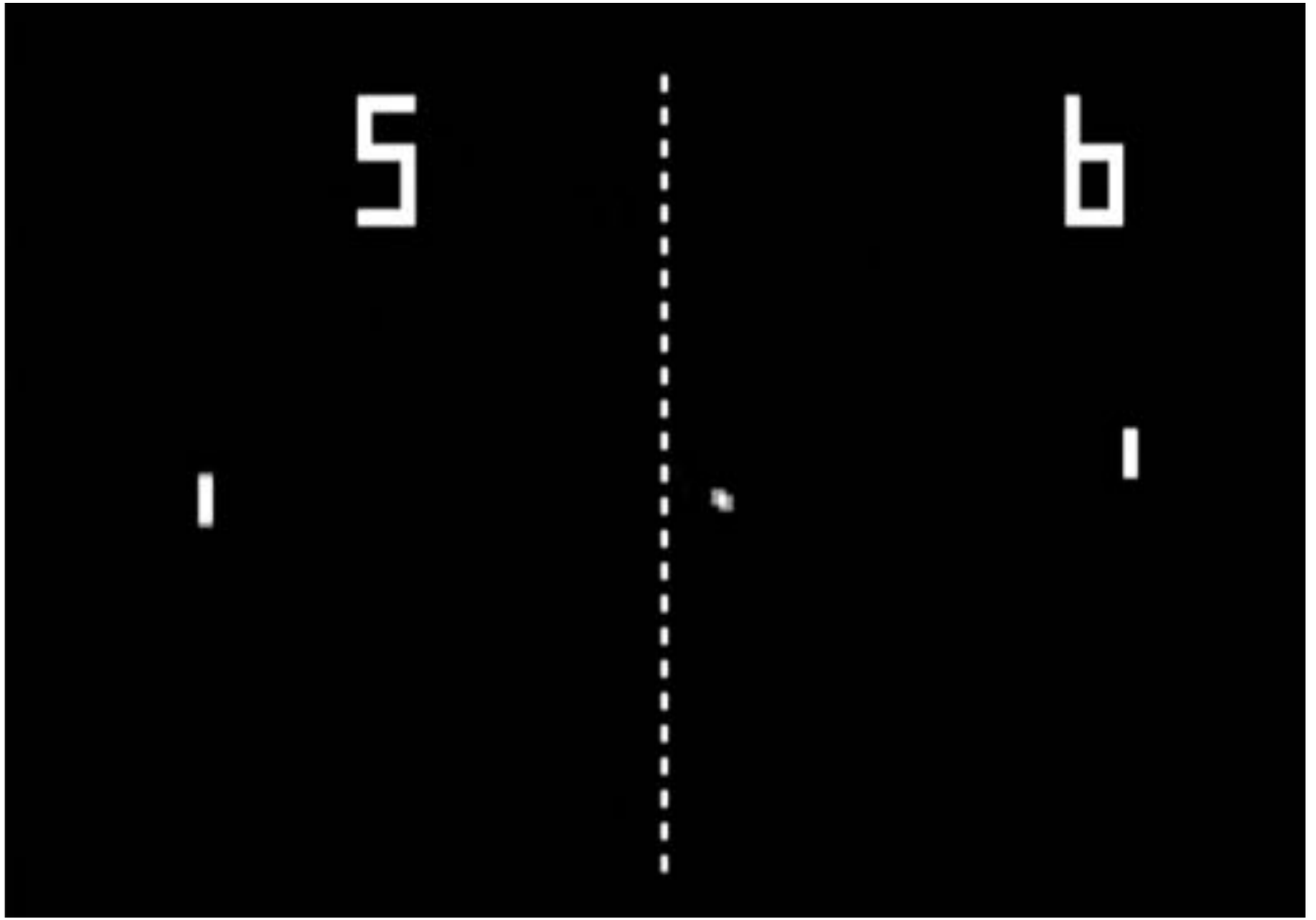
7/Motion

Like a flip book, animation on screen is created by drawing an image, then drawing a slightly different image, then another, and so on. The illusion of fluid motion is created by *persistence of vision*. When a set of similar images is presented at a fast enough rate, our brains translate these images into motion.



***Pong* (1972)**
https://www.youtube.com/watch?v=it0sf4CMDeM

Move a ball across the screen

Wrap the ball around the borders

Bounce the ball off the borders

Bounce the ball off the top and the bottom of the screen, but allow it to pass over the left and right sides

Create two paddles (left and right) that the ball bounces off of; add key presses to control the paddles

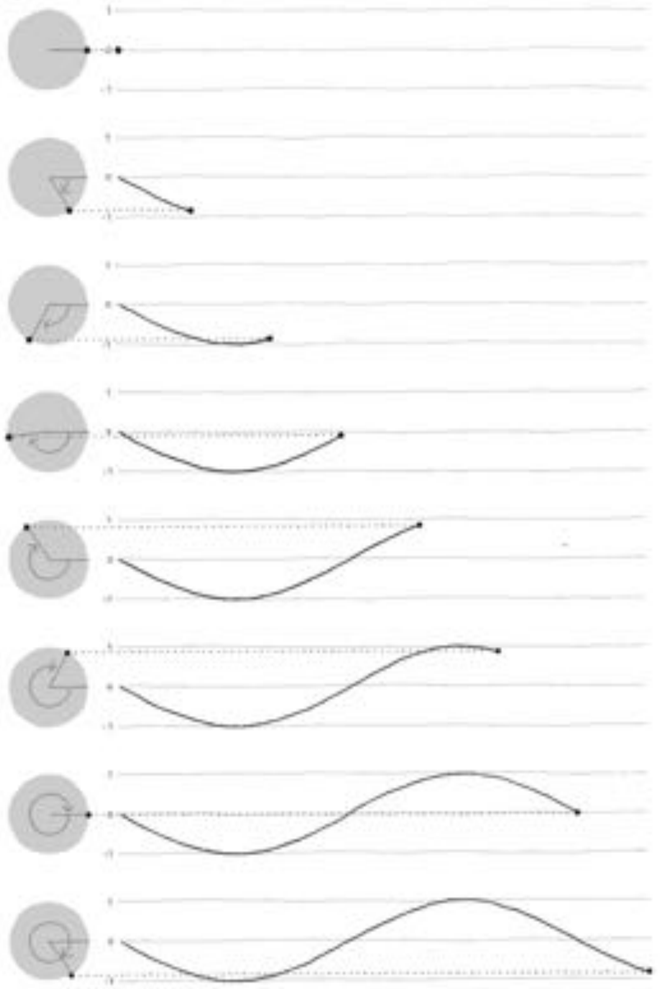
Speed the ball up every 20 seconds

Write the score to the screen and update it when one player wins a point

Restart the game with a key press

The *sin()* and *cos()* functions in Processing return values between –1 and 1 for the sine or cosine of the specified angle. Like *arc()*, the angles must be given in radian values (see Examples 3-7 and 3-8 for a reminder of how radians work). To be useful for drawing, the *float* values returned by *sin()* and *cos()* are usually multiplied by a larger value.

Figure 7-2. Sine and cosine values.



Animate a shape:

moving up and down
via a sinusoidal equation

moving in a circular motion

moving in a spiral

Animate several shapes:

moving up and down
via a sinusoidal equation

and offset their phases

Translate, Rotate, Scale

Changing the screen coordinates is an alternative technique to create motion. For instance, you can move a shape 50 pixels to the right, or you can move the location of coordinate (0,0) 50 pixels to the right—the visual result on screen is the same. By modifying the default coordinate system, we can create different *transformations* including translation, rotation, and scaling. Figure 7-3 demonstrates this graphically.

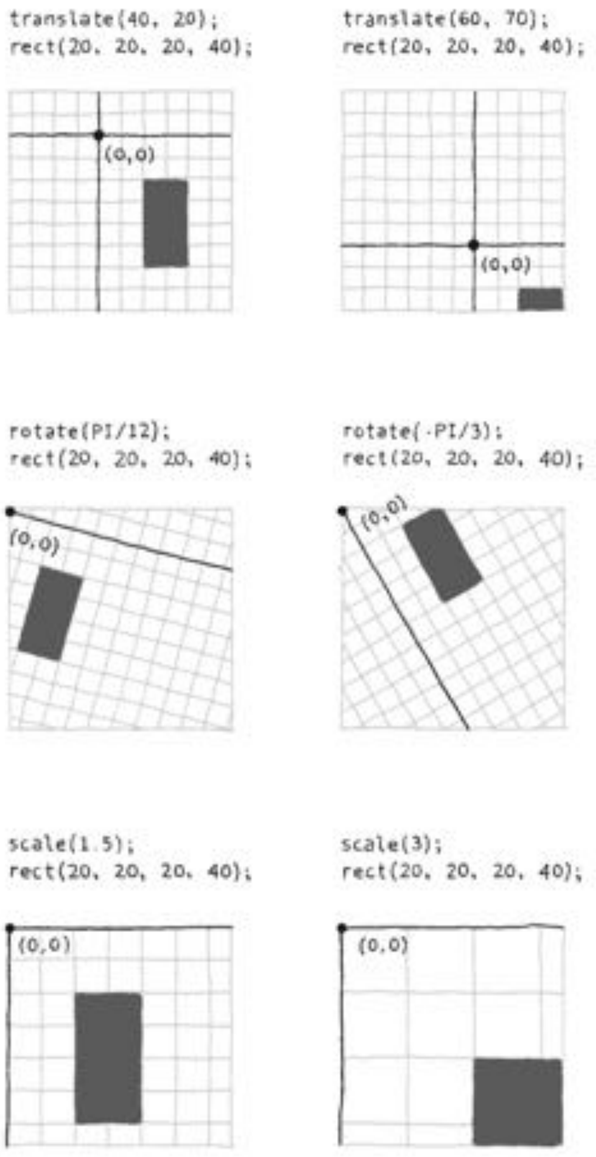


Figure 7-3. Translating, rotating, and scaling the coordinates.

Maribou State - *Feel Good (feat. Khruangbin)* Spotify Video Loop (2018)
https://www.youtube.com/watch?v=VT78T4jcMsI

Create a video loop composition with two images: one that rotates, and one that moves according to a sinusoidal function

https://momentsurfco.com + Mo Willems http://pigeonpresents.com

Homework 06 // Due 2018.10.15

Part I. Customize your Pong game
Think about using different colors, shapes, forms, images, etc.

Size: 1280x720 pixels

Part II. Generate a moving video loop / animation
Use at least 2 loaded Images or Shapes. Use rotation + a sinusoidal function.

Size: 1280x720 pixels or 720x720 pixels