E05: Chromatic

Here's a fun effect you see in games sometimes that makes it look like you are looking through a prism. It works by sampling the texture multiple times at slightly different places and then combines them back together.

```
void main(){
  float t = cc_Time[0];
  vec2 uv = cc_FragTexCoord1;
  float wave = 0.01;

  // Sample the same texture several times at different locations.
  vec4 r = texture2D(cc_MainTexture, uv + vec2(wave*sin(1.0*t + uv.y
*5.0), 0.0));
  vec4 g = texture2D(cc_MainTexture, uv + vec2(wave*sin(1.3*t + uv.y
*5.0), 0.0));
  vec4 b = texture2D(cc_MainTexture, uv + vec2(wave*sin(1.6*t + uv.y
*5.0), 0.0));

  // Combine the channels, average the alpha values.
  gl_FragColor = vec4(r.r, g.g, b.b, (r.a + b.a + g.a)/3.0);
}
```

Exercises

- Experiment with other distortion patterns.
- See if you can figure out how to do more than just three colors/samples.
- Are there other ways to combine the colors together?