Mixing

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Getting a Mixing Parameter

// create a value of 0 or 1 from the value of x wrt edge:
float t = step(float edge, float x);

// create a value in the range 0 to 1 from the value of x wrt edge0 and edge1:
float t = smoothstep(float edge0, float edge1, float x);

Using that Mixing Parameter to Blend Two Quantities

// use the returned value from step() or smoothstep() to blend value0 to value1:
T out = mix(T value0, T value1, float t);

where T can be just about any type: float, vec2, vec3, vec4, ...

One would expect 0 ≤ t ≤ 1, but that doesn't have to be true. After all, these are just numbers.

For a fun exercise with this, go back and change the morphing slider to go beyond 0 - 1.

As we will see later, there are really good uses for going beyond the range 0 - 1.

“SmoothPulse” in a Fragment Shader

void main( ) {
    float f = fract( uA*vX );
    float t = smoothstep( 0.5-uP-uTol, 0.5-uP+uTol, f )  - smoothstep( 0.5+uP-uTol, 0.5+uP+uTol, f );
    vec3 rgb = vLightIntensity * mix( WHITE, vColor, t );
    gl_FragColor = vec3( rgb, 1. );

Fun With One

The Taylor Series expansion of $y = \sin \pi x$ around $x = 0.5$ is:

$y = \frac{0.038 - 3.7x + 3.88x^2 - 2.58x^4}{\pi^2}$

which is pretty close to $y = 3x - 3x^3$. 

Moral: There are many ways to turn [0 - 1] into [0 - 1]
Both go from 0 to 1.
Both have initial and final slopes of 0.
The quintic has initial and final curvatures of 0.