// 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 );

// use the returned value from step( ) or smoothstep( ) to blend in0 into in1:
T out = mix( T in0, T in1, float t );
in float vX, vY;
in vec4 vColor;
in float vLightIntensity;

uniform float uA;
uniform float uP;
uniform float uTol;

const vec4 WHITE = vec4( 1., 1., 1., 1. );

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 );
    gl_FragColor = mix( WHITE, vColor, t );
    gl_FragColor.rgb *= vLightIntensity;
}

---

Fun With One

Moral: There are many ways to turn [0.-1.] into [0.-1.]
Why Do These Two Curves Match So Closely?

The Taylor Series expansion of $y = \sin\left(\frac{\pi x}{2}\right)$ around $x=0.5$ is:

$$y = \left(\frac{1}{2} - \frac{\pi^2}{4} + \frac{\pi^4}{96}\right) + \left(\frac{\pi}{2} - \frac{\pi^3}{16}\right)x + \left(\frac{\pi^5}{8} - \frac{\pi^7}{12}\right)x^2$$

$= 0.038 - 0.37x + 3.88x^2 - 2.58x^3$

which is pretty close to: $y = 3x^2 - 2x^3$

Cubic vs. Quintic

Both go from 0 to 1.
Both have initial and final slopes of 0.
The quintic has initial and final curvatures of 0.