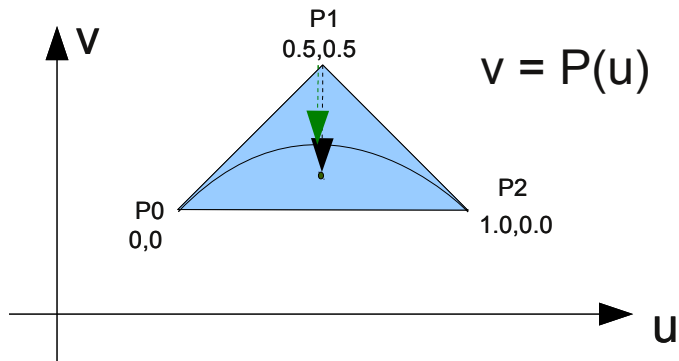


## Simple Quadratic, n=2



$$p(u) = \sum_{i=0}^n p_i N_{i,D}(u)$$

where  $D=3$ ,  $n=2$

Knot vector =  $[0 \ 0 \ 0 \ 1 \ 1 \ 1]$

$v = P(u)$

If interior is required, we change sign of  $P1v$   
 $\rightarrow P1(0.5, -0.5)$ , won't affect the algorithm

Let  $A=(u,v)=(u,P(u))$

Let  $B=(u, \text{abs}(v)) \rightarrow$  current pixel fragment

if ( $v > 0$  and  $\|P1B\| > \|P1A\|$ )  
 or ( $v < 0$  and  $\|P1B\| < \|P1A\|$ )

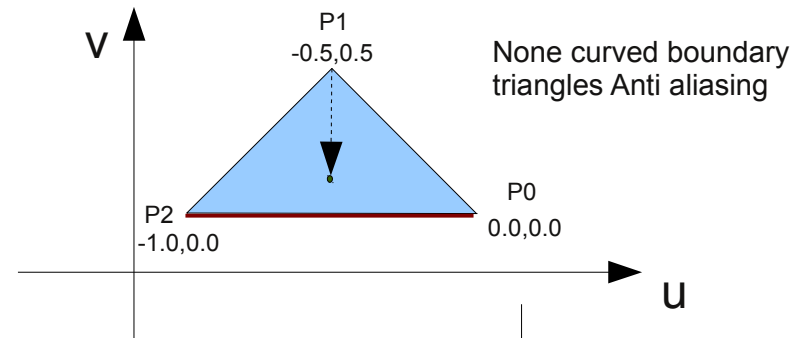
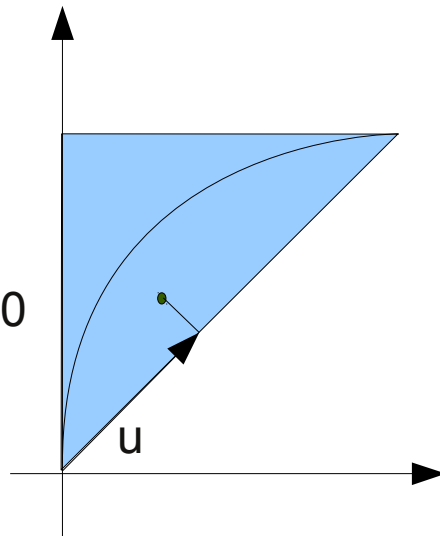
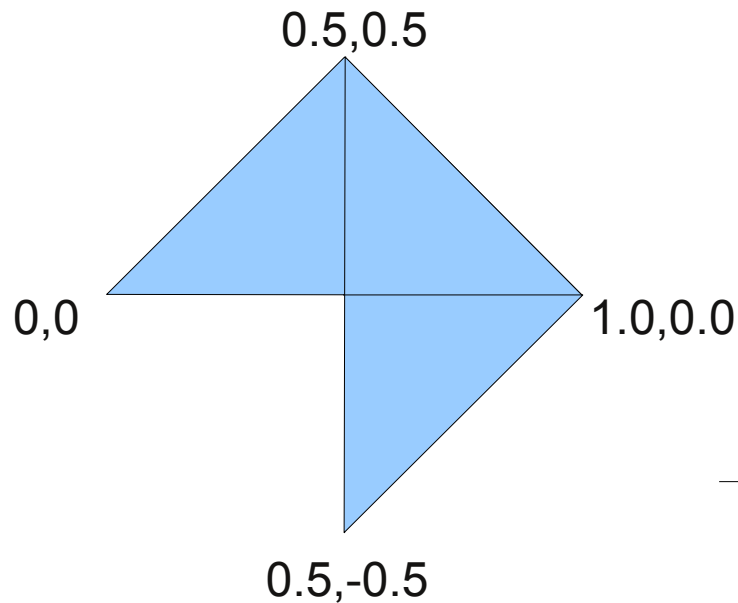
color = c;

c.alpha = func( $P1B, P1A$ , sign( $v$ ))

else

kill

## Generalization, $n > 2$



Since  $P0P2$  is a boundary edge  
 $\rightarrow$  the boundary edge case can be defined  
 by signs different of the  $P2u$ .

Hence

if ( $u < 0$ )

set color = c;

Let  $P1A = (\text{abs}(u), 0)$

$P1B = (\text{abs}(u), v)$

color.alpha = func( $P1B, P1A, 0$ )

Note: with this addition our  
 shader will be able to  
 handle the  
 boundary triangles and  
 Interior triangles.

No need for shader  
 switching.