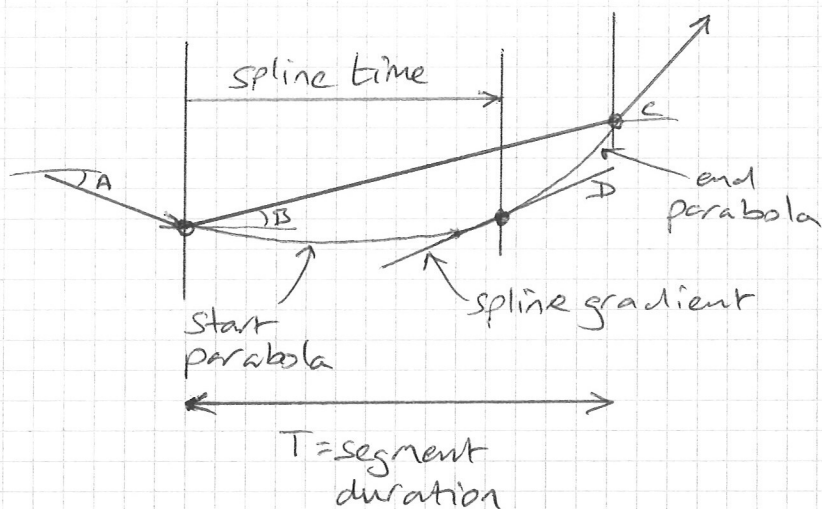


# SPLINE FUNCTION

EACH SEGMENT HAS A

START GRADIENT	A
SEGMENT GRADIENT	B
END GRADIENT	C
SPLINE GRADIENT	D
DURATION	T



TO SIMPLIFY THE MATHS, THESE ARE NORMALISED =

normalised start gradient	$a = 0$
normalised end gradient	$c = 1$
normalised segment gradient	$b = \frac{B-A}{C-A}$
normalised spline gradient	$d$
normalised Duration	1
normalised spline time	$t$

SPLINE IS FORMED BY TWO PARABOLAS

INTEGRAL OF  $b$  must equal INTEGRAL OF  $A \rightarrow D \rightarrow C$

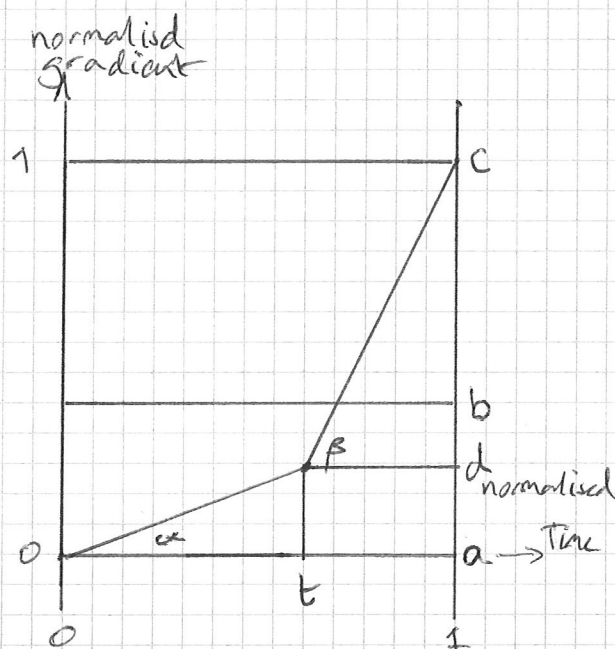
$$\therefore b = d - \frac{d \cdot t}{2} + \frac{1}{2}(1-d)(1-t)$$

$$\therefore d = t + 2b - 1$$

$$\therefore t = d - 2b + 1$$

Normalised parabola accelerations

$$\alpha = \frac{d}{t} \quad \beta = \frac{(1-d)}{(1-t)}$$



THERE ARE 3 CASES