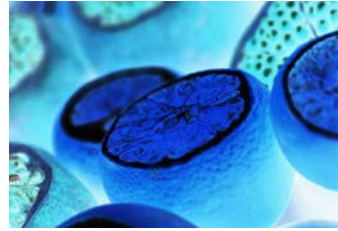


Point Operators



Invert



Gamma correction



Contrast Stretching



Thresholding



Histogram Equalisation



Contrast Stretching

- Is a Piecewise Linear Transformation Function
- Gamma correction is a non-linear transformation function
- Aims to increase the apparent dynamic range of an image by increasing contrast in some intervals of the domain and decreasing in others
- Transform requires user input consisting of 2 points (x_1, y_1) and (x_2, y_2) that control the transformation



Contrast Stretching

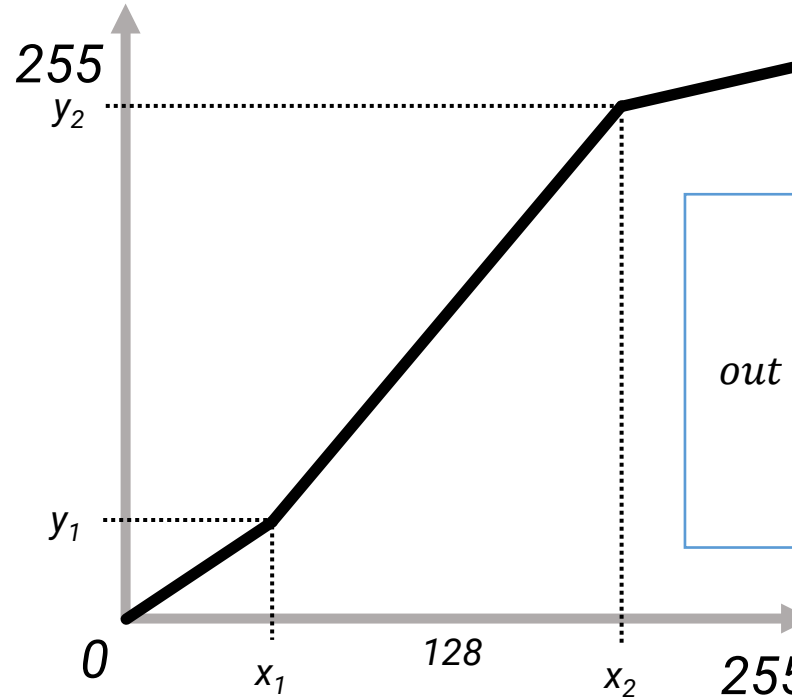


Given the input value, in , the output value, out , is calculated using the equation.

Calculate for each colour channel.

In this case, values above x_2 are compressed so values between x_1 and x_2 can be stretched.

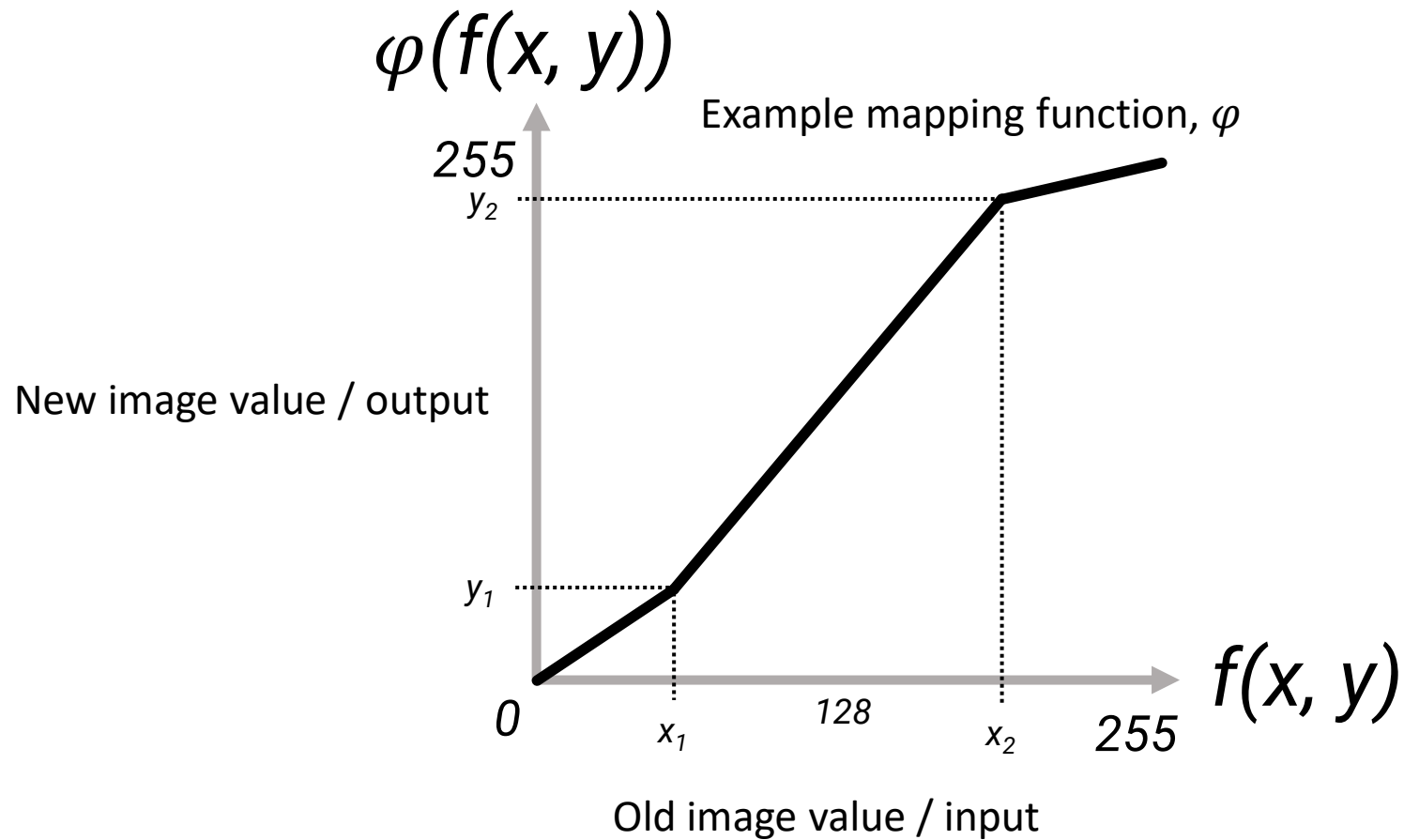
$\varphi(f(x, y))$



$$out = \begin{cases} \frac{y_1}{x_1} \times in & \text{if } in < x_1 \\ \frac{(y_2 - y_1)}{(x_2 - x_1)} \times (in - x_1) + y_1 & \text{if } x_1 \leq in \leq x_2 \\ \frac{(255 - y_2)}{(255 - x_2)} \times (in - x_2) + y_2 & \text{if } in \geq x_2 \end{cases}$$

$f(x, y)$

Look up table

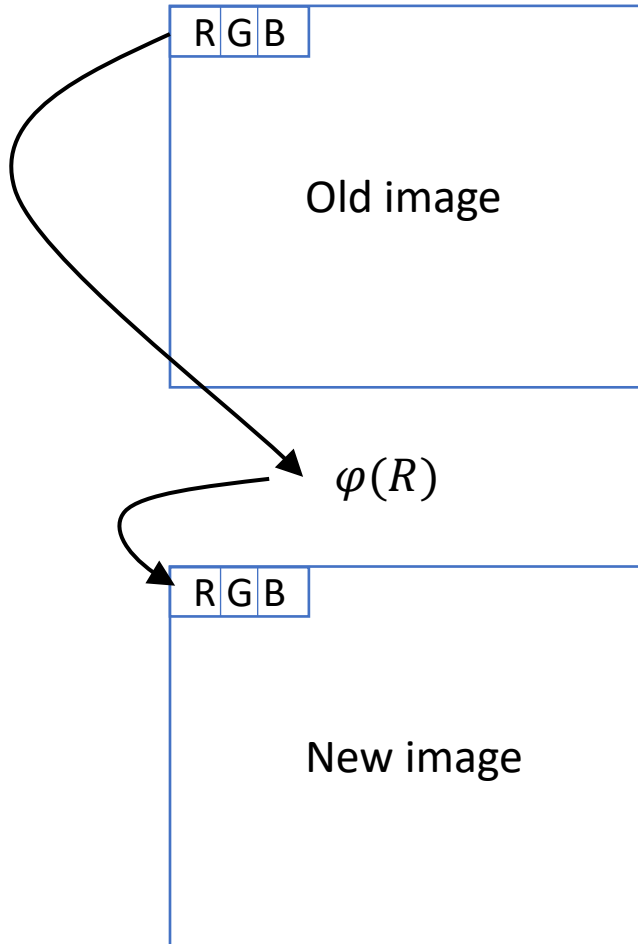


0	$\varphi(0)$
1	$\varphi(1)$
2	$\varphi(2)$
255	$\varphi(255)$



Look up table

Without look up table



~~With look up table~~

