What a function says a colour does

A gradient, an ink, a curve: one number goes in and a colour comes out, and the file says how. It can say it by naming two ends, by tabulating the answer, or by writing out the working.

Read off a table: seven colours, sixteen bits apiece



The table holds what the colour is at seven points; between them reading software draws the line.

Worked out: a program that cuts the input into bands



{ 7 mul cvi dup 6 gt { pop 6 } if 6 div dup 1 exch sub 0.25 } — reading software runs this.

One ink, shown through a program where the press is not to hand



10% 25% 40% 55% 70% 85% 100%

{ dup 0.9 mul exch dup 0.6 mul exch 3 exp 0.4 mul 0 exch } — the black lags, then catches up.

Stitched: the table over the first half, two endpoints over the second



A piece written as a stream stands as an object of its own, and the joint points at it.

A table and a program are both written as streams, which is what lets them hold as much as they do. The program is built here as steps, not as text, so what reaches the file is what can be written.

The rest of the calculator, one operator a strip

Each strip is a grey ramp worked out by the program printed under it.



{ 0.5 sub abs 2 mul }



{ 4 mul cvi cvr 4 div }



{ 10 mul cvi 3 idiv 3 div }



{ 15 mul cvi 12 and 15 div }



{ neg 1 add }



{ 15 mul cvi 3 or 15 div }



{ 4 mul round 4 div }



{ 15 mul cvi 9 xor 15 div }



{ 4 mul ceiling 4 div }



{ 15 mul cvi not 15 and 15 div }



{ 4 mul truncate 4 div }



{ 4 mul cvi 1 exch bitshift 16 div }



{ sqrt }



{ 4 mul cvi 2 eq { 1 } { 0 } ifelse }



{ 360 mul sin 1 add 2 div }



{ 0.5 lt { 0 } { 1 } ifelse }



{ 360 mul cos 1 add 2 div }



{ 0.25 le { 0.2 } { 0.8 } ifelse }



{ 1 atan 45 div }



{ 0.75 ge { 1 } { 0.4 } ifelse }



{ 1.718282 mul 1 add ln }



{ true { 1 exch sub } { 0.5 mul } ifelse }



{ 9 mul 1 add log }



{ false { 1 exch sub } { 0.5 mul } ifelse }

One ramp of five samples, at every depth a table holds

The fewer bits a sample takes, the fewer greys it can say: one bit says black or white.



BitsPerSample 1



BitsPerSample 2



BitsPerSample 4



BitsPerSample 8



BitsPerSample 12



BitsPerSample 16



BitsPerSample 24



BitsPerSample 32



Filled in by a cubic rather than a straight line



Read back to front, its outputs narrowed to 0.2 to 0.8



Three kinds of function joined end to end, under a range of 0.2 to 0.8