0.1 Linear and affine functions

0.1.1 Linear maps

Linear maps can be written as:

$v = Mu$

These go through the origin. That is, if $u = 0$ then $v = 0$.

0.1.2 Affine function

Affine functions are more general than linear maps. They can be written as:

$v = Mu + c$

Where c is a vector in the same space as v.

Affine functions where $c \neq 0$ are not linear maps. They are not homomorphisms which preserve the structure of the vector space.

If we multiply u by a scalar s, then v will not increase by the same proportion.