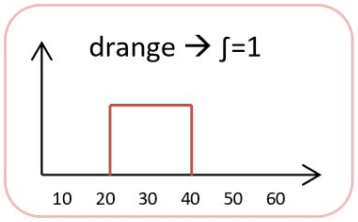
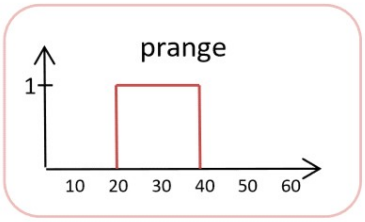
Range

The range function can describe a value range. It can be used if a range or a threshold is needed:
→range (lower, upper), lower < upper

Example 1:

A technology only works with a temperature between 20 and 40 °C.
range(lower=20, upper=40)

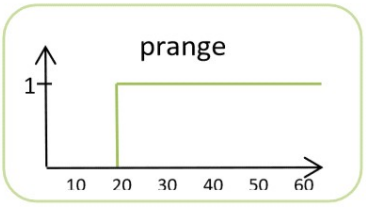




Example 2:

A minimal surface area of 20m² is required
range(lower=20, upper=+inf)

A density function does not make sense in this case (cannot have infinite values)



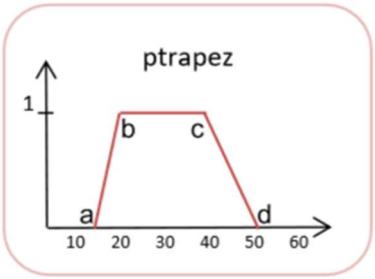
Trapezium

The trapezium function can describe values where a linear interpolation between four data points (min, 1st optimum, 2nd optimum and max) is assumed.
→ trapez(a,b,c,d) , a<b<c<d

Example1:

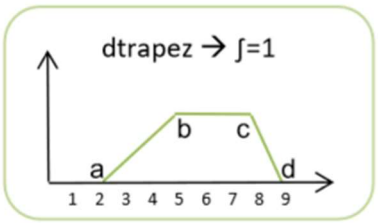
The technology starts working at 15°C, reaches its optimum at 20 to 40°C and does not work over 50°C
trapez(a=15, b=20, c=40, d=50)

A density function does not make sense under this statement



Example 2:

The groundwater in this area is minimal 2m, mostly 5 to 8m and max. 9m deep.
trapez(a=2, b=5, c=8, d=9)



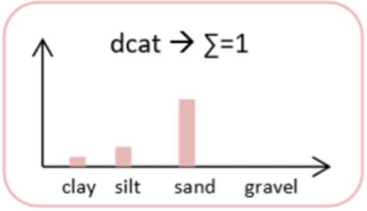
A performance function does not make sense under this statement

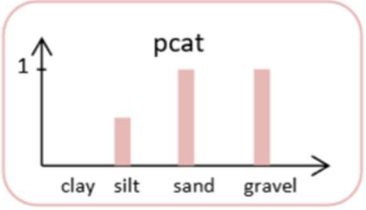
Category

The category function allows us to give values to specific categories.
→ cat(category 1, category 2, category 3, …)

Example 1:

The soil in the area is 10% clay, 20% silt and 70% sand
cat(clay=0.1, silt=0.2, sand=0.7, gravel=0)



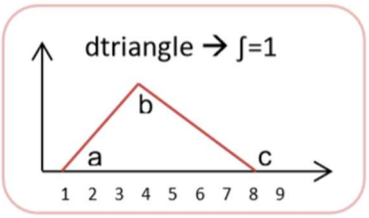


Triangle

The triangle function can describe values where a linear interpolation between three points is assumed
→ triangle(a, b, c) , a <= c <= b

Example 1:

The groundwater level varies between 2m and 8m with an average of 4m
triangle(a=2, b=8, c=4)

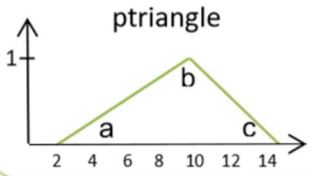


A performance function does not make sense under this statement

Example 2:

The technology works with a slope between 2% and 15% with an optimal slope of 10%
triangle(a=2, b=15, c=10)

A density function does not make sense under this statement



Example 3:

Technology performance depending on electricity outages per month
triangle(a=0, b=8, c=0)

A density function does not make sense under this statement