

```

1  -- ## class NUM: summarize numbers
2  local all = require"all"
3  local obj, push, the = all.obj, all.push, all.the
4  local SOME = require"somc"
5
6  --> NUM(at:?int, txt:?str) :NUM -> Summarize a stream of numbers.
7  local NUM = obj("NUM", function(i,at,txt)
8    i.at, i.txt, i.n, i.kept = at or 0, txt or "", 0, SOME(the.SOME)
9    i.w = i.txt:find"$" end)
10
11 --> add(i:NUM, x:num, n:?int=1) -> 'n' times,update 'i''s SOME object.
12 function NUM.add(i,x,n)
13   if x ~= "?" then
14     for _ = 1, (n or 1) do i.n=i.n+1; i.kept:add(x) end end end
15
16 --> clone(i:(SYM|NUM)) : (SYM|NUM) -> Return a class of the same structure.
17 function NUM.clone(i) return NUM(i.at, i.txt) end
18
19 --> div(i:NUM):tab -> Return 'div'ersity of a column
20 -- (its tendency_not_ to be a its central tendency). To understand this code
21 -- recall kpm;1 to kpm;2 sds covers 66 to 99% of the Gaussian prob. In between,
22 -- at kpm;1.28, we cover 90%. So (p90-p10)/(2*1.28) returns one sd.
23 function NUM.div(i)
24   local a=i.kept:has(); return (per(a,.9) - per(a,.1))/2.56 end
25
26 --> like(i:NUM, x:any) -> Return the likelihood that 'x' belongs to 'i'.
27 function NUM.like(i,x,...)
28   local sd,mu=i:div(), i:mid()
29   if sd==0 then return x==mu and 1 or 1/big end
30   return math.exp(-.5*((x - mu)/sd)^2) / (sd*(2*math.pi)^0.5) end
31
32 --> mid(i:NUM):tab -> Return a columns' 'mid'ddle
33 function NUM.mid(i)
34   local a=i.kept:has(); return per(a,.5) end
35
36 --> norm(i:NUM, x:num):num -> Normalize 'x' 0..1 for lo..hi,
37 function NUM.norm(i,x)
38   local a=i.kept:has(); return (a[#a]-a[1])<1E-9 or (x-a[1])/(a[#a]-a[1]) end
39
40 return NUM

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