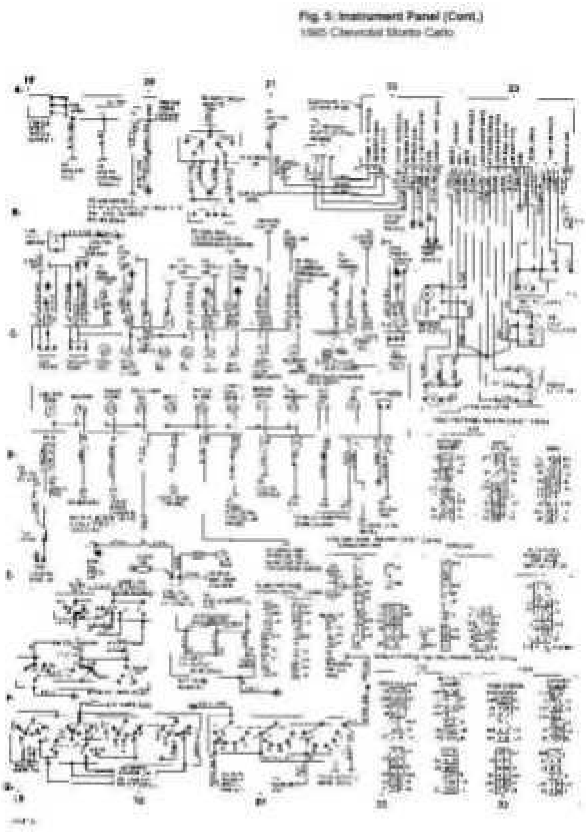

While trying to convey to an OP on X validated why the inversion method was not always the panacea in pseudo-random generation, I took the example of a mixture of K exponential distributions when K is very large, in order to impress (?) upon said OP that solving F(x)=u for such a closed-form cdf F was very costly even when using a state-of-the-art (?) inversion algorithm, like uniroot, since each step involves adding the K terms in the cdf. Selecting the component from the cumulative distribution function on the component proves to be quite fast since using the rather crude

```
x=rexp(1,lambda[1+sum(runif(1)>wes)])
```

brings a 100-fold improvement over

```
Q = function(u) uniroot((function(x) F(x) - u), lower = 0,
    upper = qexp(.999,rate=min(la)))[1] #numerical tail quantile
x=Q(runif(1))
```

when $K=10^5$, as shown by a benchmark call

```
         test  elapsed
1       compo    0.057
2      Newton   45.736
3     uniroot    5.814
```

where Newton denotes a simple-minded Newton inversion. …