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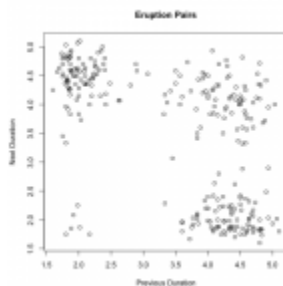
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# Time-Successive Old Faithful Eruption Durations

2014-07-21 BY GENE

Because of the observed data, a four group clustering emerges when you plot successive eruption durations, of the famous geyser. That is, the  $x$  axis is the first eruption and  $y$  is the next.

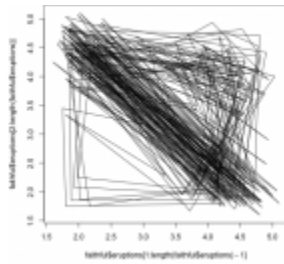


There appear to be four kinds of eruption pairs: 1. two short eruptions (the bottom-left cluster), 2. a short eruption followed by a long eruption, and the respective opposites (long-long and long-short).

The R code for this, is just a single line:

```
plot( faithful$eruptions[1:length(faithful$eruptions)-1], faithful$eruption
```

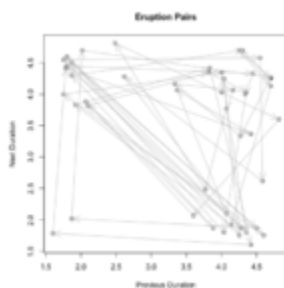
A line graph shows the state transitions. Notice that there are no bottom-left to top-right transitions. Curious!



**[UPDATE]** We can sample a subset of the Old Faithful eruption data and add arrows from previous to next observation. Here is the R code:

```
z <- sample( faithful$eruptions, 50 )
x <- z[ 1 : length(z) - 1 ]
y <- z[ 2 : length(z) ]
plot( x, y, xlab = "Previous Duration", ylab = "Next Duration", main = "Eru
s <- seq( length(x) - 1 ) # one shorter than data
arrows( x[s], y[s], x[ s + 1 ], y[ s + 1 ], length = 0.2, angle = 20, col =
```

And here is the plot:



And here is the Shiny webapp: <https://github.com/ology/Geyser>

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