Subject: Re: Box-Whisker plots in IDL
Posted by David Fanning on Mon, 20 Aug 2007 23:47:28 GMT
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jschwab@gmail.com writes:

> Pardon me if I'm mistaken, but I think these "quartiles with
> histogram" examples, including the one that's in JD's histogram
> tutorial are fundamentally incorrect.
>
> You are assuming "Equal bin widths" ==> "Equal #'s in each bin" !
>
> When HISTOGRAM splits a data list into N bins, it does so such that
> the *width* of the bins are equal. In no way does it somehow create a
> situation in which the *number of points* in each bin is equal (which
> is what would be required to find quartiles in such a manner).
>
> The given examples have only "worked" because you're either dealing
> with uniform distributions (in which case equal bin widths do imply
> equal numbers in each bin) or because the example data happens to be
> roughly uniform.
>
> If you want to convince yourself, try one of those codes with
> data = randomu(seed, 1000) * 100.
> and then with
> data2 = data * data
> The quartiles in the 2nd case should simply be the squares of the
> quartiles from the first.

Humm. Maybe you are right. (Isn't it odd that math types
never hit the SEND button until someone else has made
a fool of themselves?)

OK, how about this:

```
data=randomu(sd,100)*100
minVal = min(data)
maxVal = max(data)
medianVal = median(data,/even)

; Find the quartiles.
qtr_25th = Median(data[Where(data LE medianVal, countlowerhalf)])
qtr_75th = Median(data[Where(data GT medianVal, countupperhalf)])
void = Where(data LT qtr_25th, countlowerquarter)
void = Where(data GE qtr_75th, countupperquarter)

Print, minVal, maxVal, medianVal, qtr_25th, qtr_75th
Print, countlowerquarter, countlowerhalf-countlowerquarter, $
```

```
      countupperhalf-countupperquarter, countupperquarter
  END
```

Which gives me:

```
     1.74060      99.8840      53.5631      31.7422      73.8378
       25           25           25           25
```

Cheers,

David
--
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Coyote's Guide to IDL Programming: http://www.dfanning.com/
Sepore ma de ni thui. ("Perhaps thou speakest truth.")
