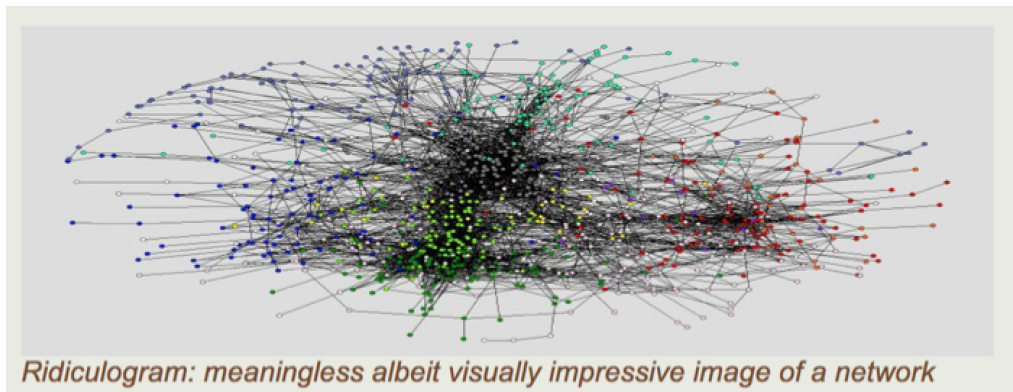


Summarizing and Presenting Data

Do-s and Don't-s for presenting genomic data

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Thursday, July 17, 2008

When visuals gone wrong ...

If you are in biosciences related work many times you have seen a fabulous but meaning-less image in the sci papers, typical error to represent data with wrong visuals perceptions, M. E. J. Newman named "Ridiculograms" (you can see the [related video](#) in Youtube).

A ridiculogram can be defined as:

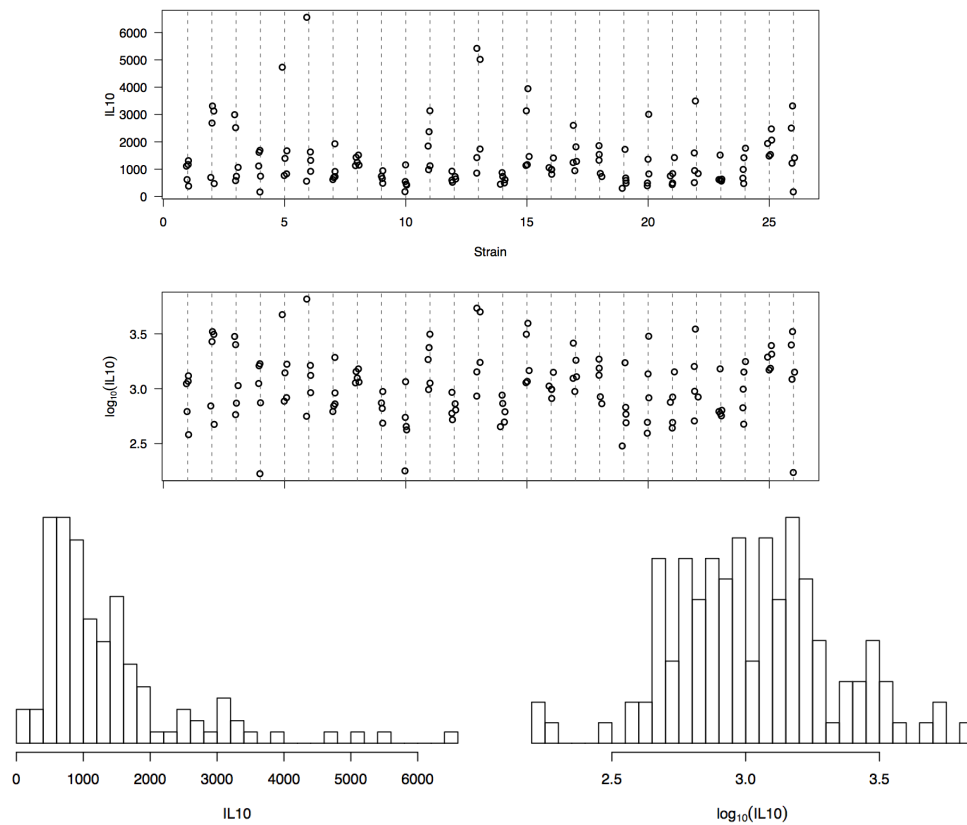
- Visual stunning
- Scientifically worthless
- Published in Nature or Science

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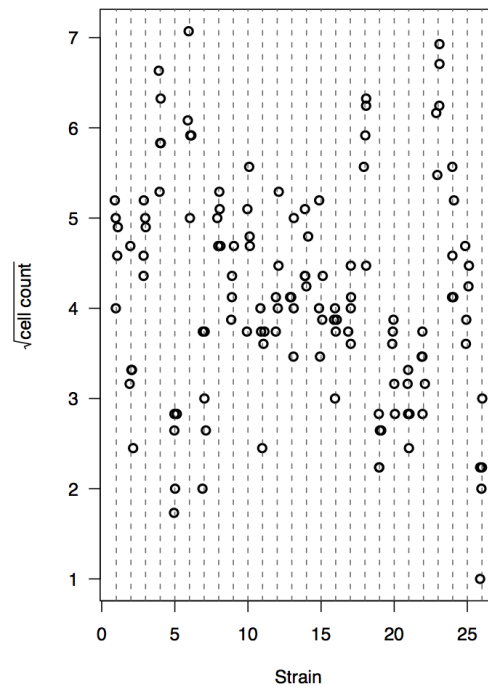
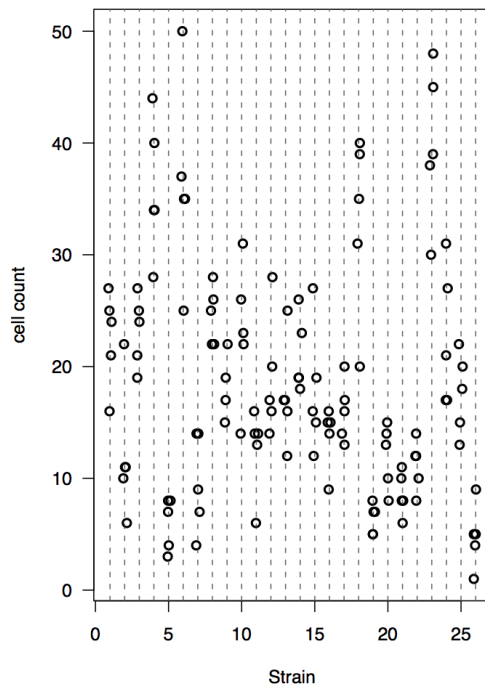
linxe-eye.blogspot.com

Data transformations

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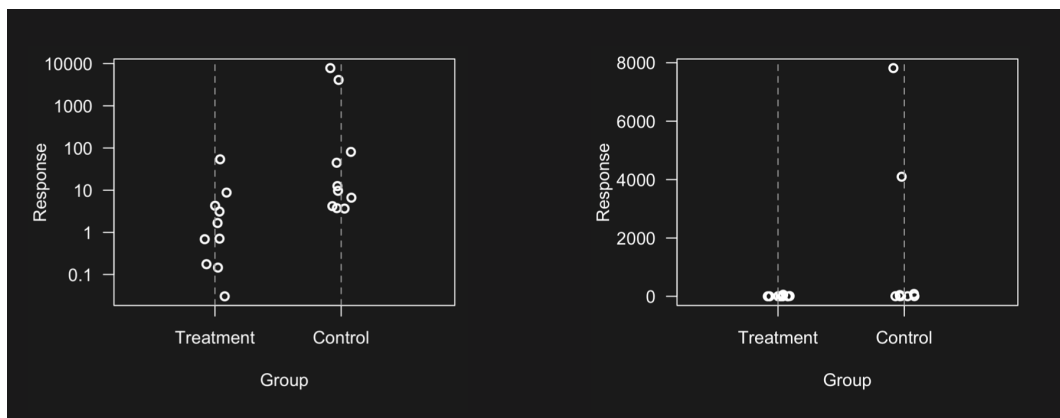


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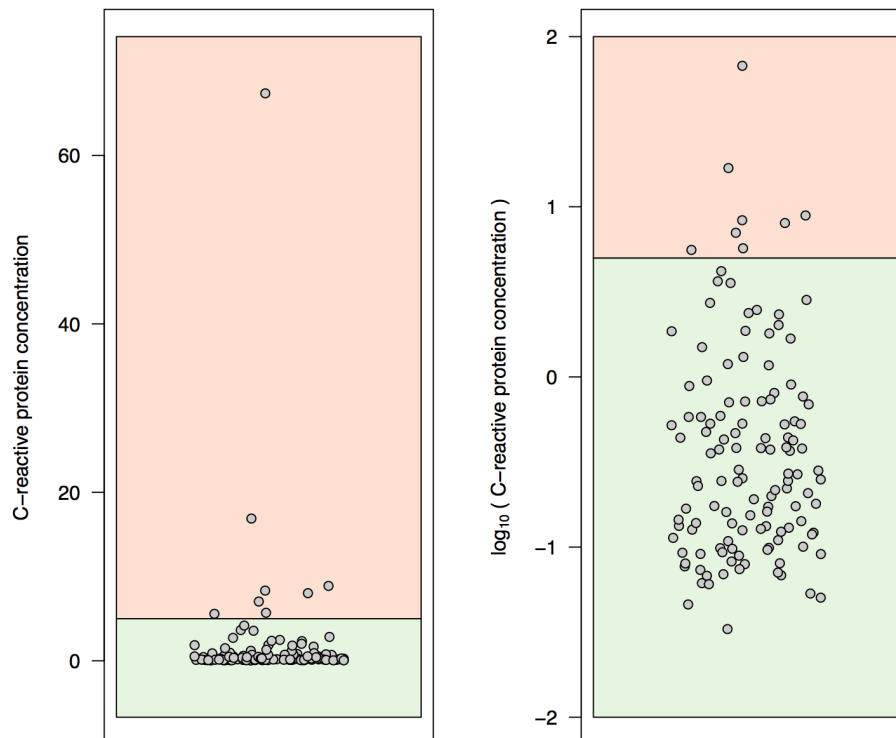
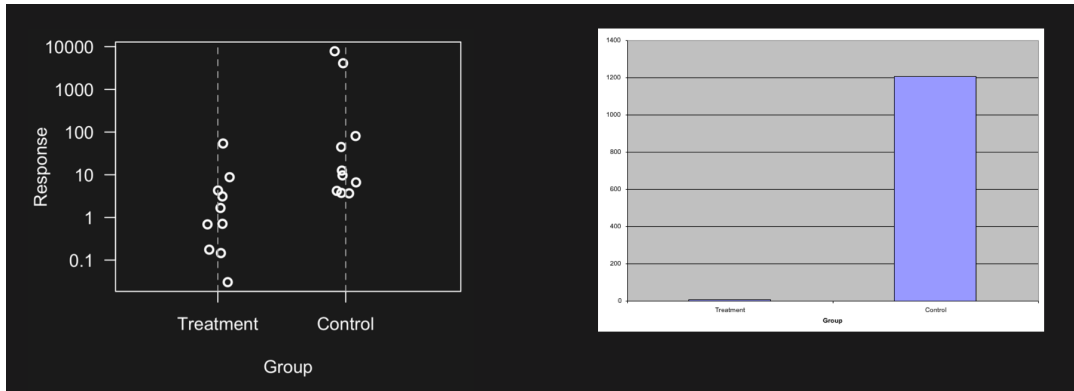
Consider data transformations

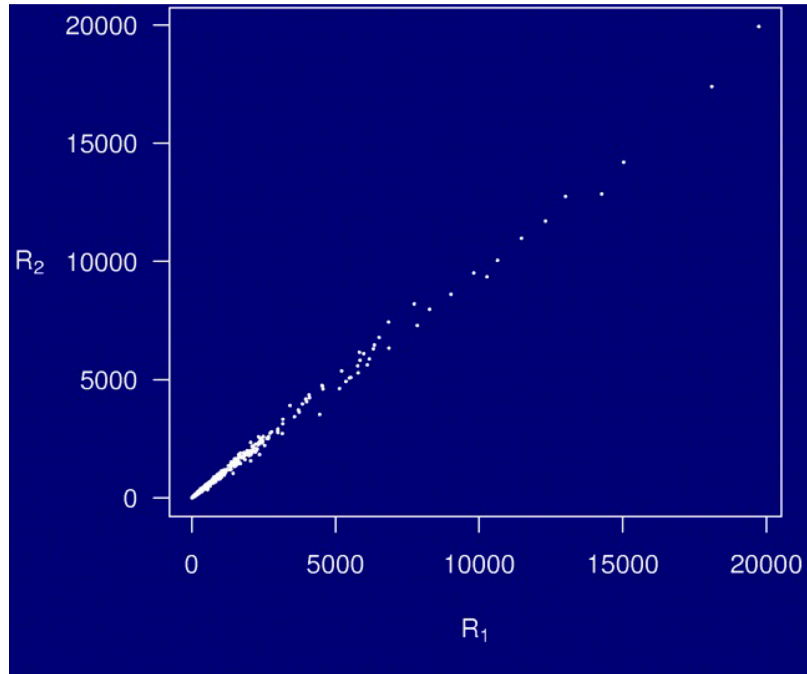


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[KB]

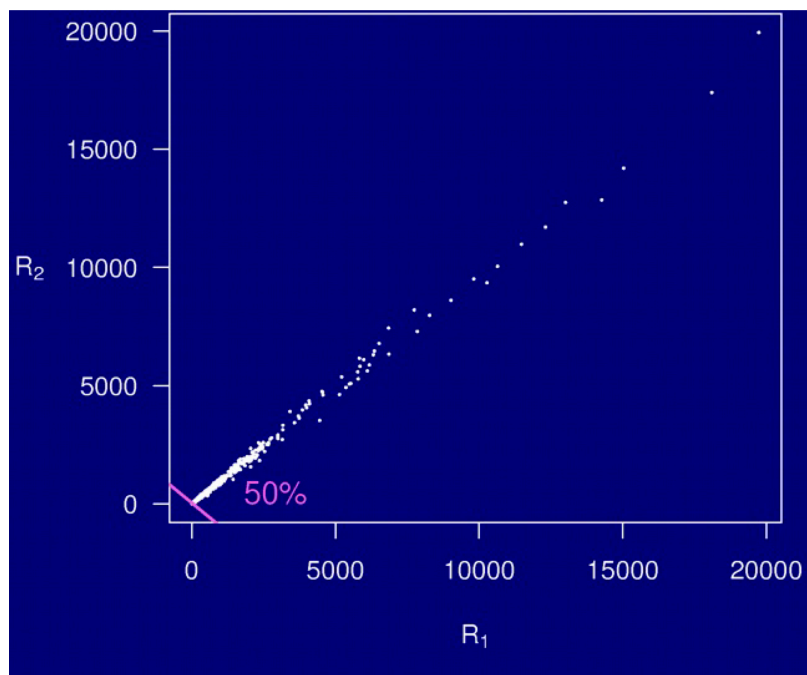
Consider data transformations





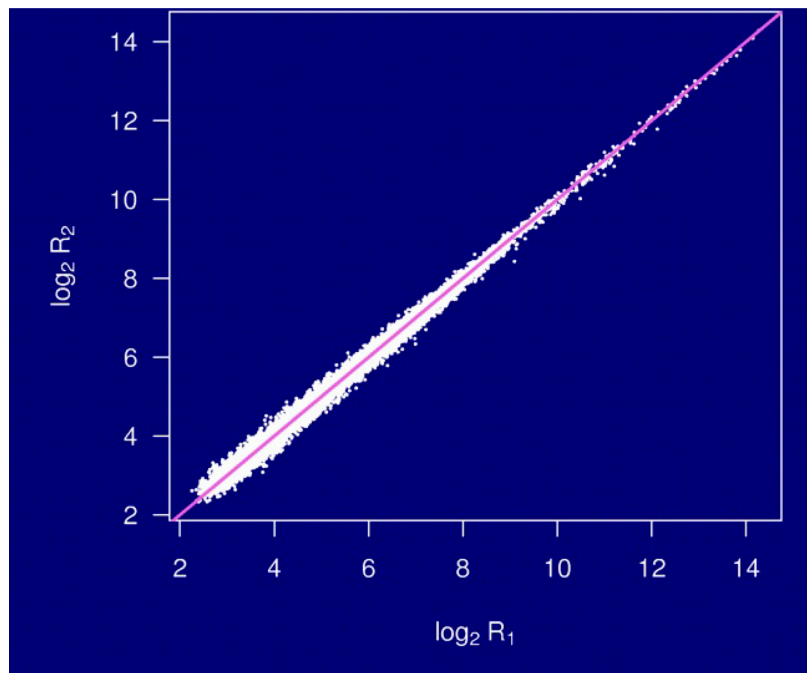
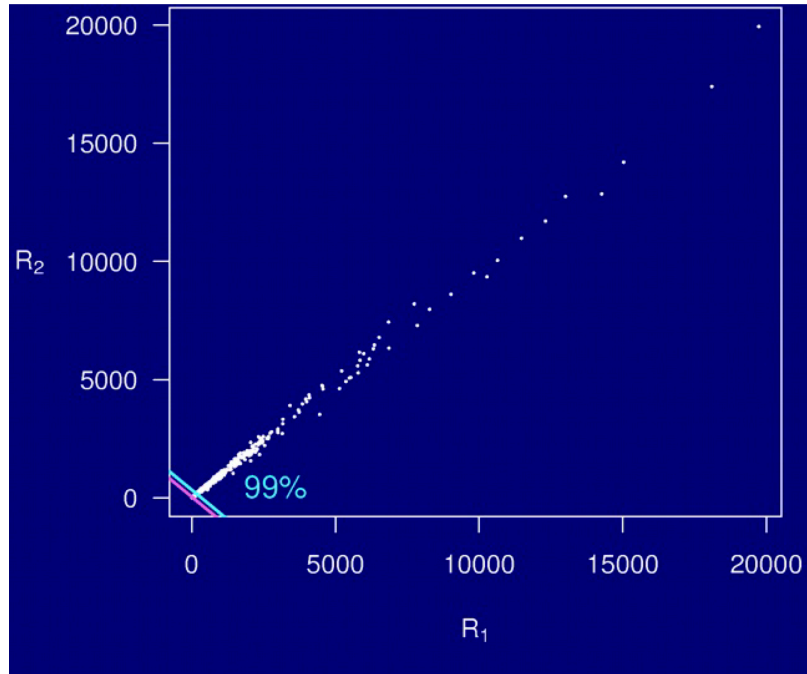
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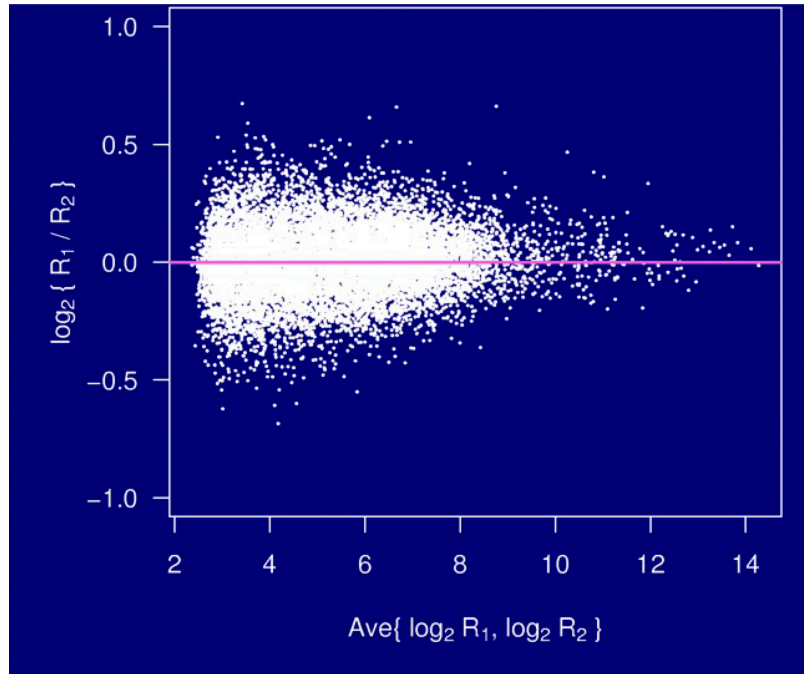
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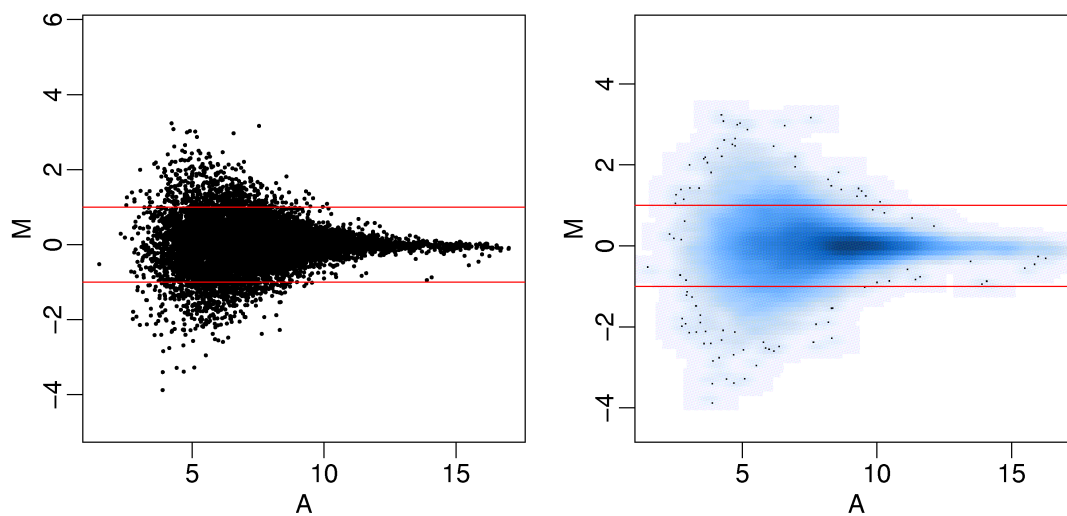
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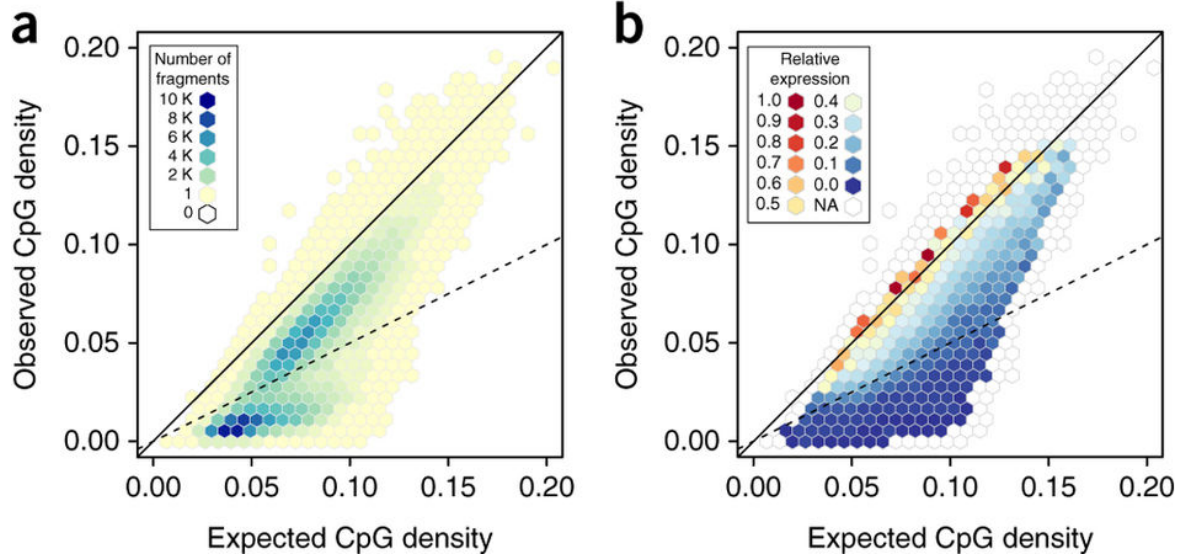




Scatter smooth



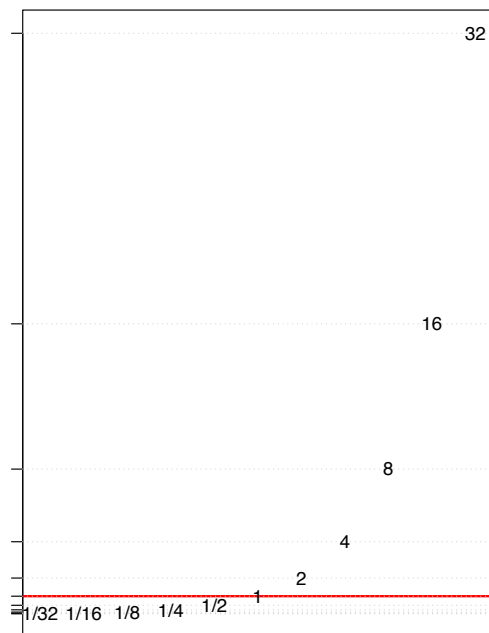
hexbin



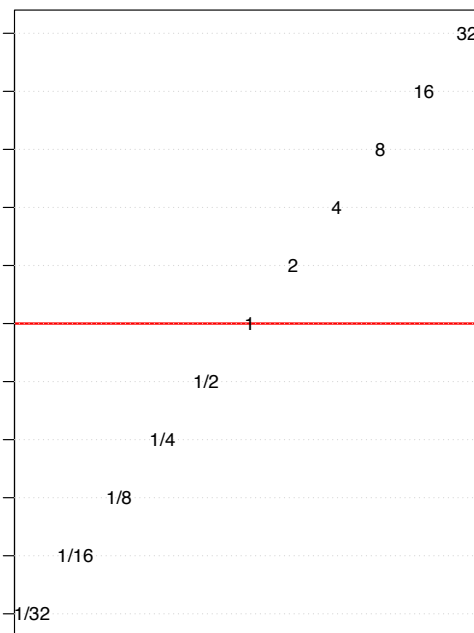
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PMID 28024146

Original scale

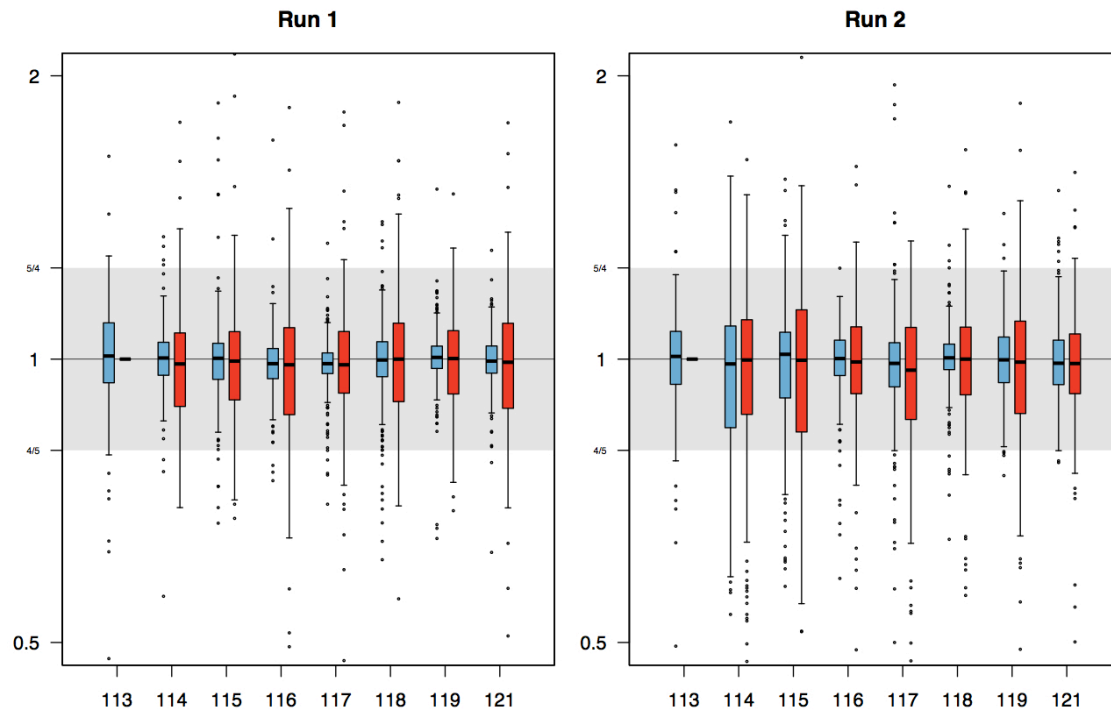


Logarithmic scale



$$\log(X/Y) = \log(X) - \log(Y) = -(\log(Y) - \log(X)) = -\log(Y/X)$$

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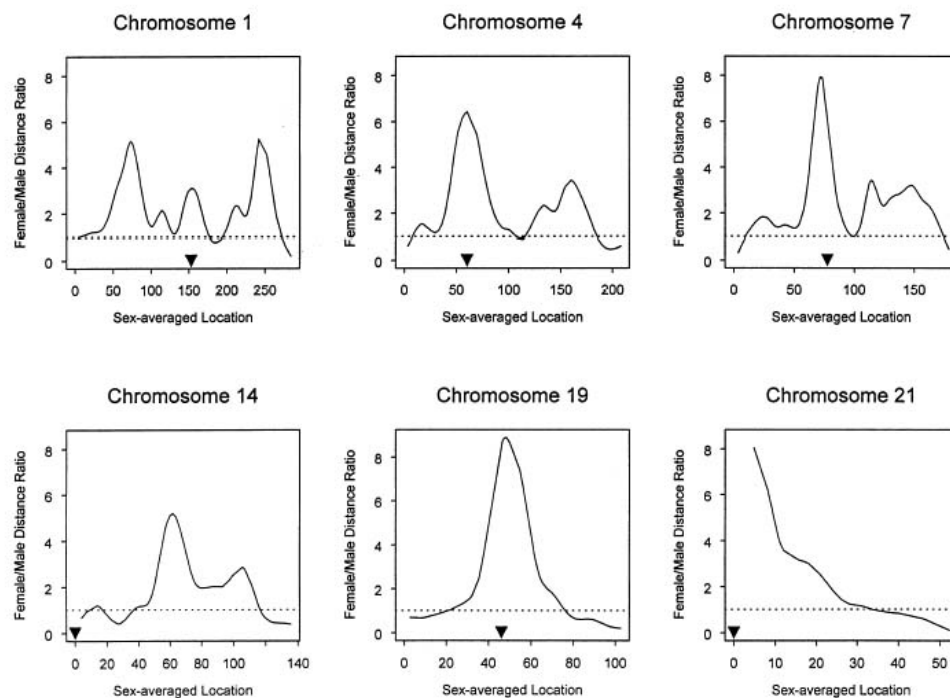


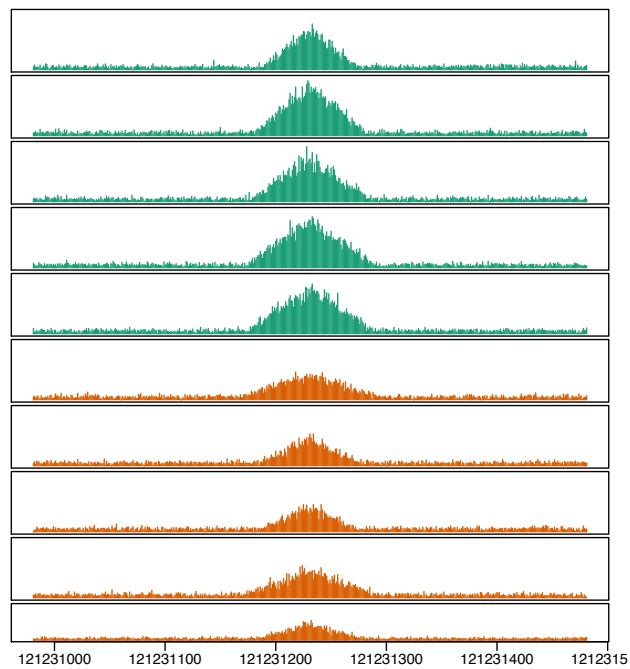
Figure 1 Plots of the female:male genetic-distance ratio against sex-averaged genetic location (in cM) along six selected chromosomes. Approximate locations of the centromeres are indicated by the triangles. The dashed lines correspond to equal female and male distances.

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PMID 9718341

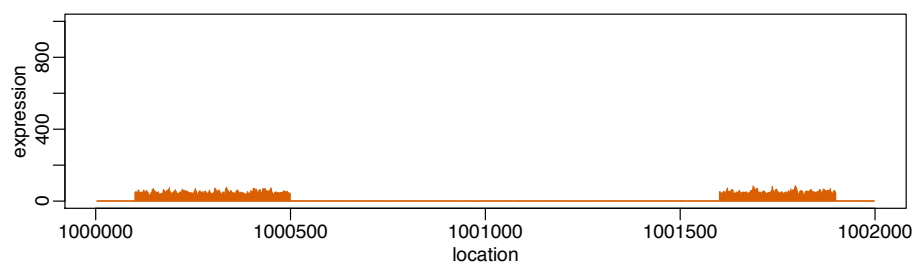
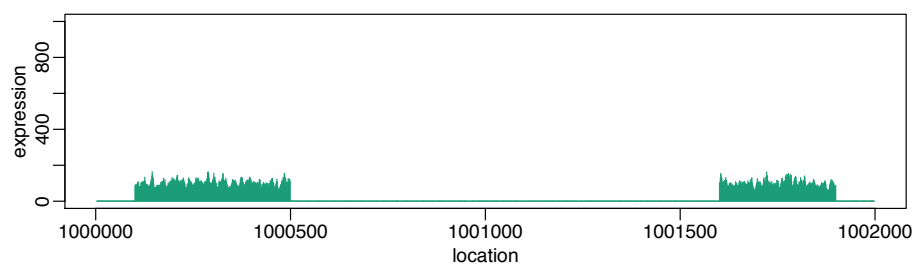
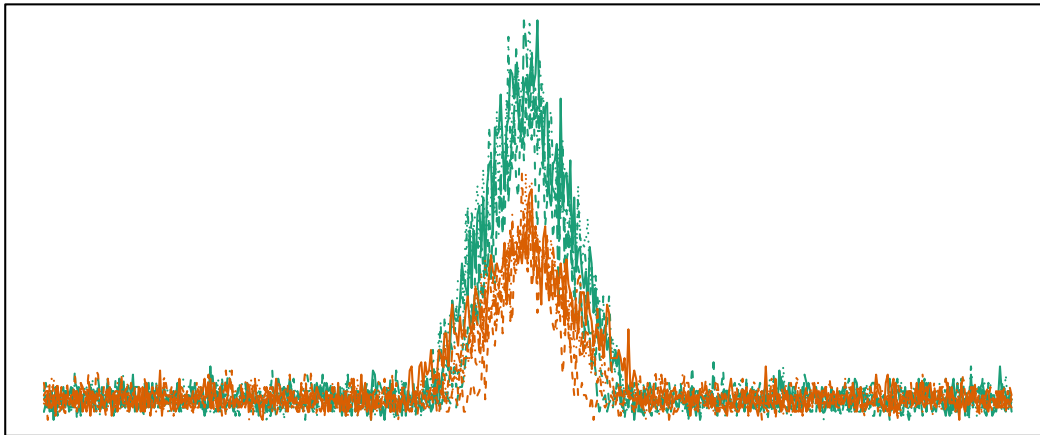
Comparisons

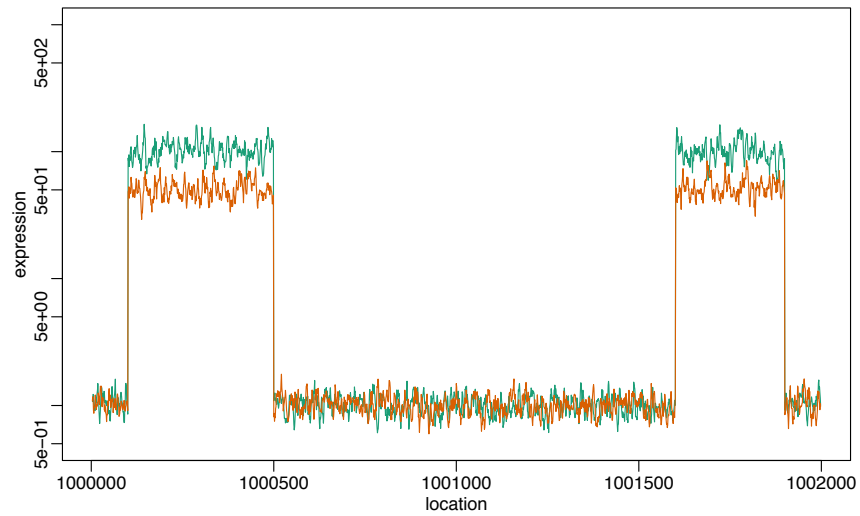
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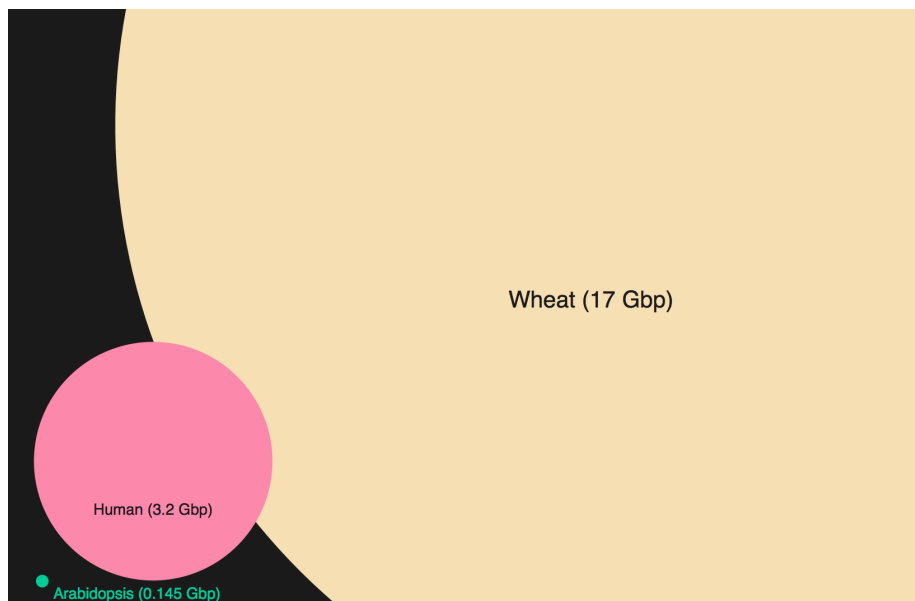
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[RI]



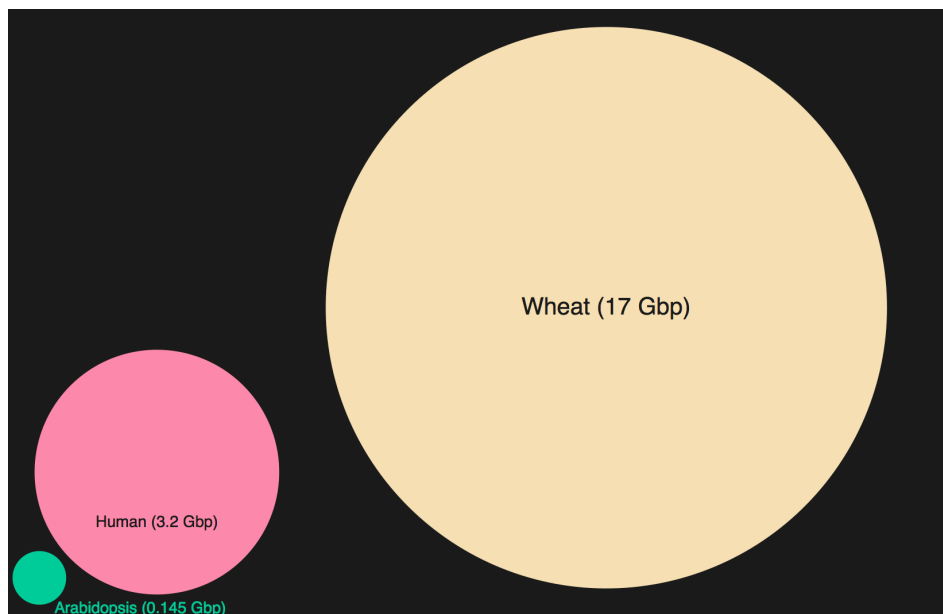


Don't distort the quantities
value proportional to **radius**



Don't distort the quantities

value proportional to **area**

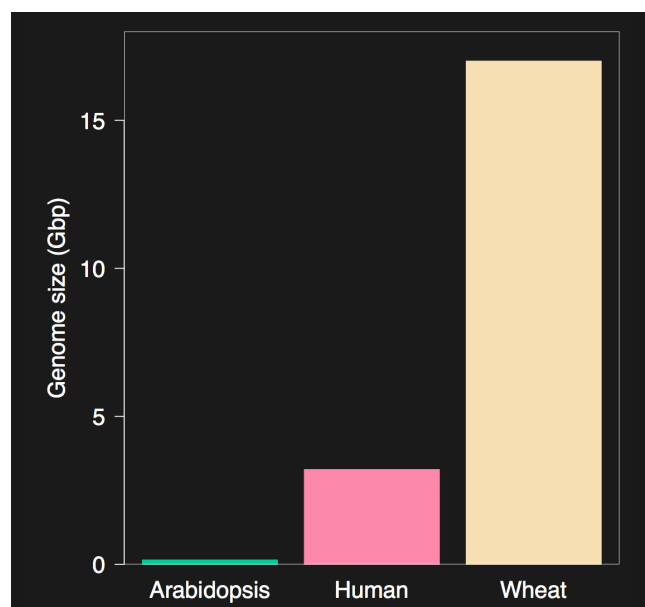


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[KB]

Don't use areas at all

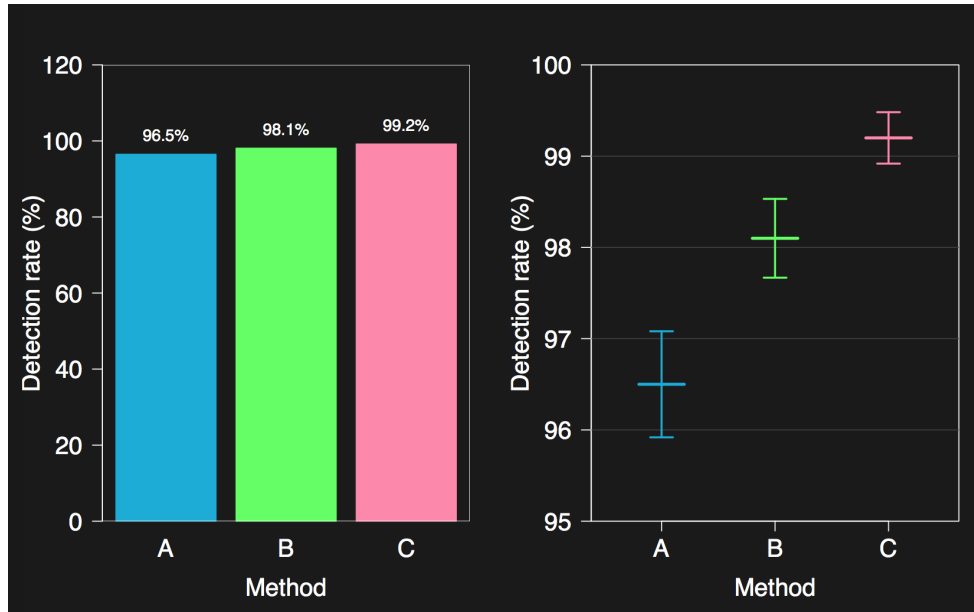
value proportional to **length**



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[KB]

Should you include zero..?

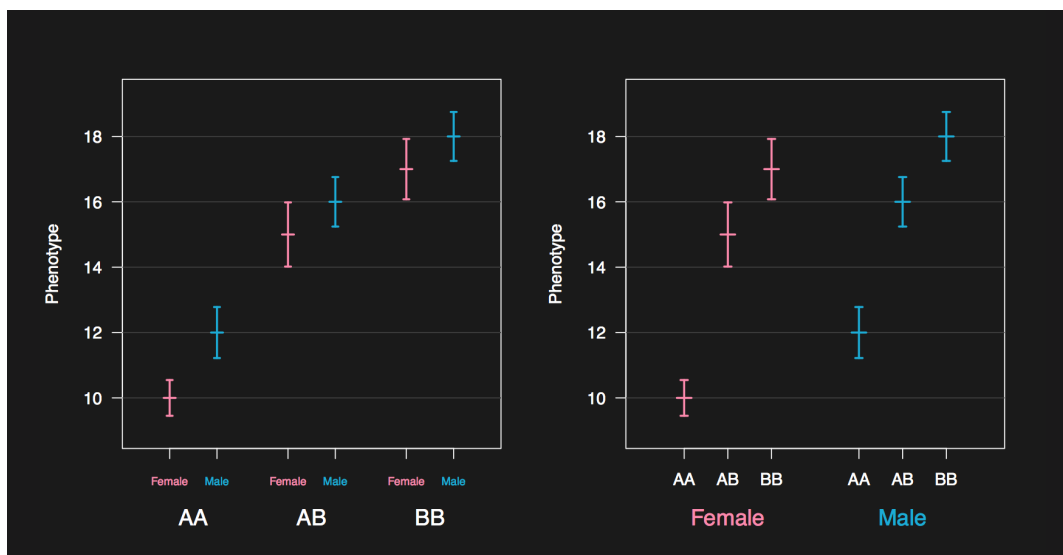


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[KB]

Ease comparisons

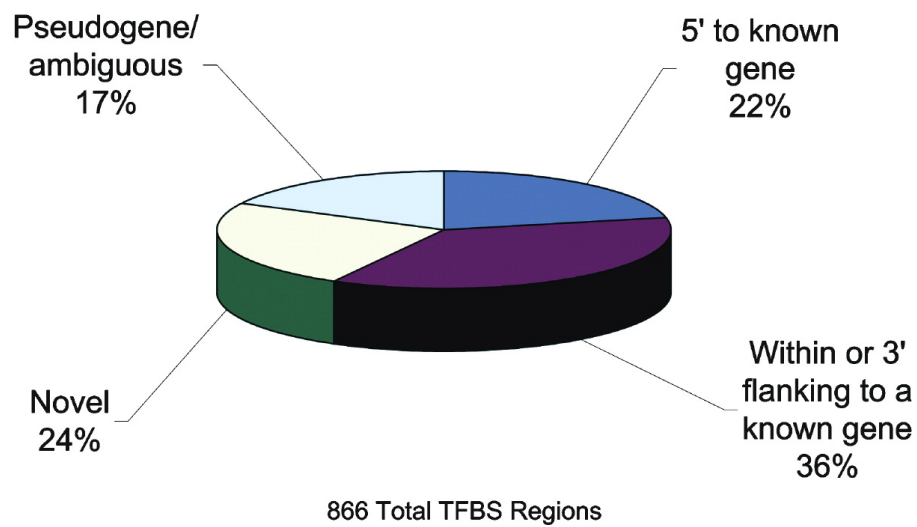
things to be compared should be adjacent



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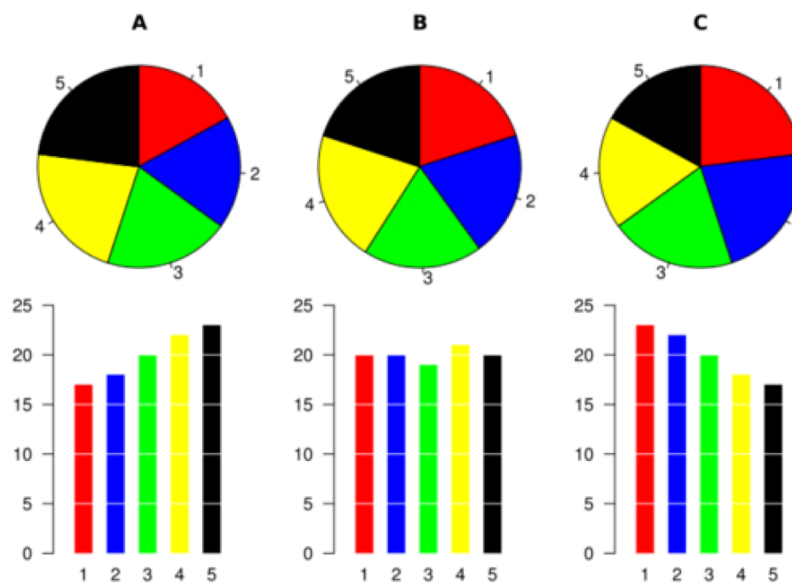
[KB]

Distribution of All TFBS Regions



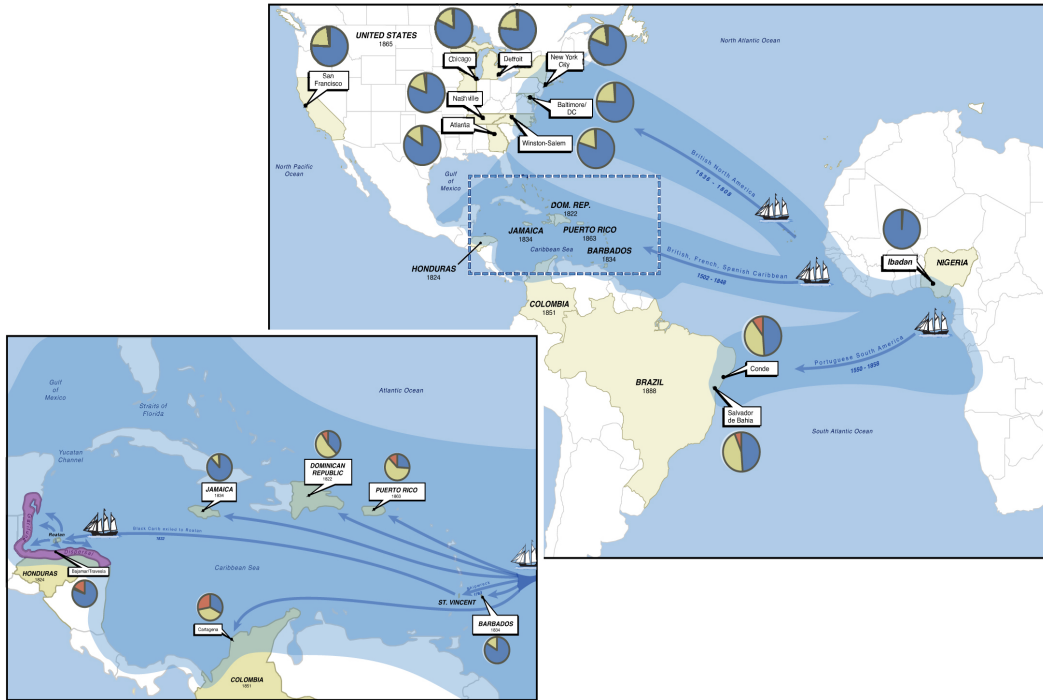
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PMID 14980218



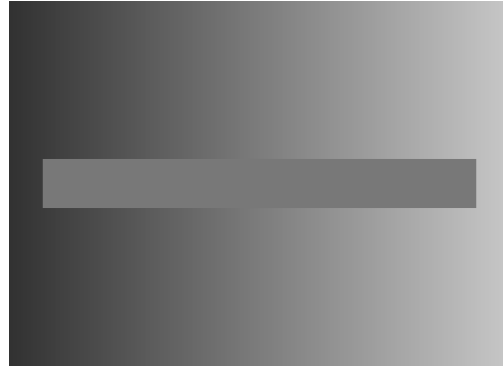
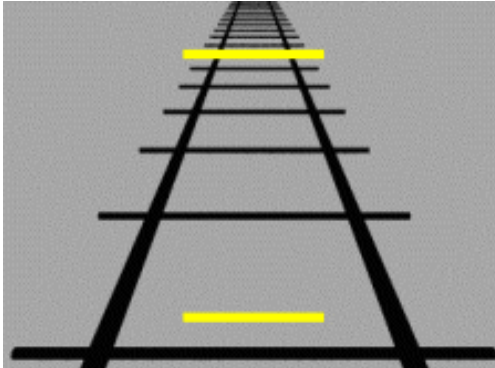
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www.businessinsider.com

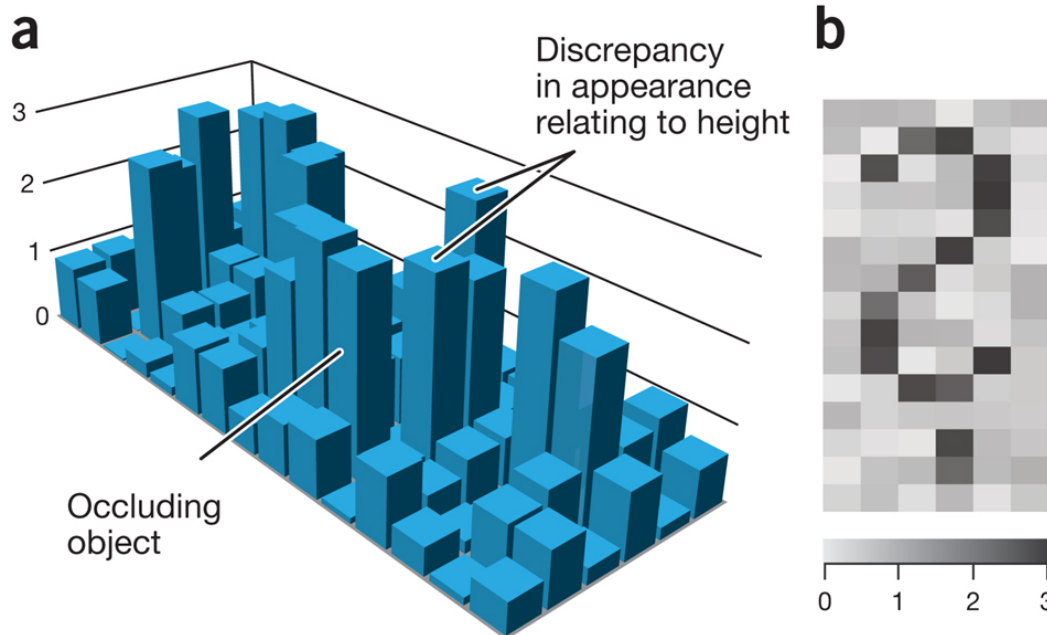


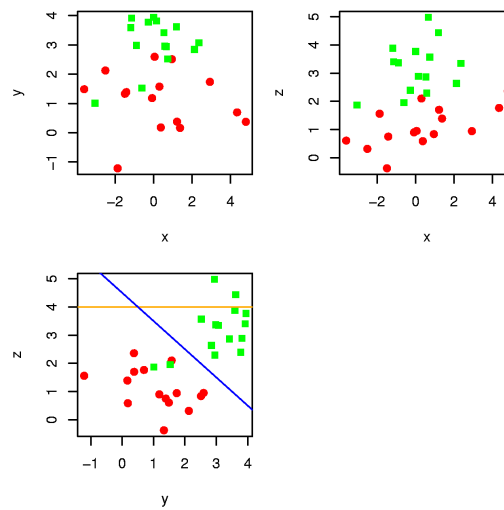
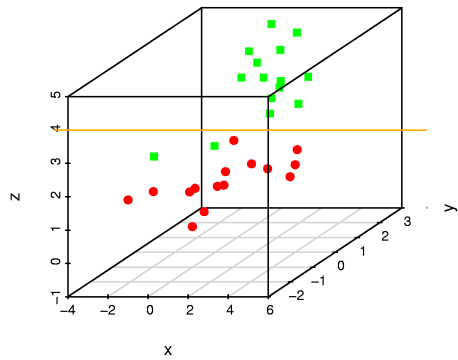
Color and 3D

Optical illusions

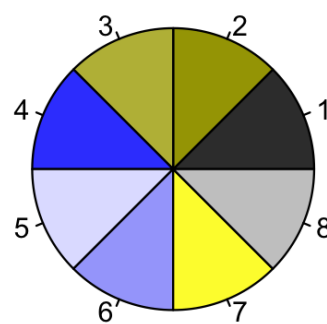
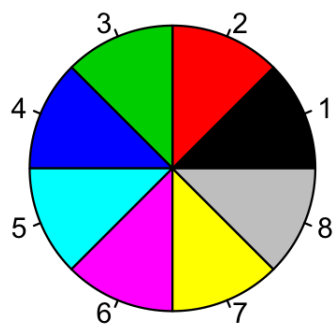


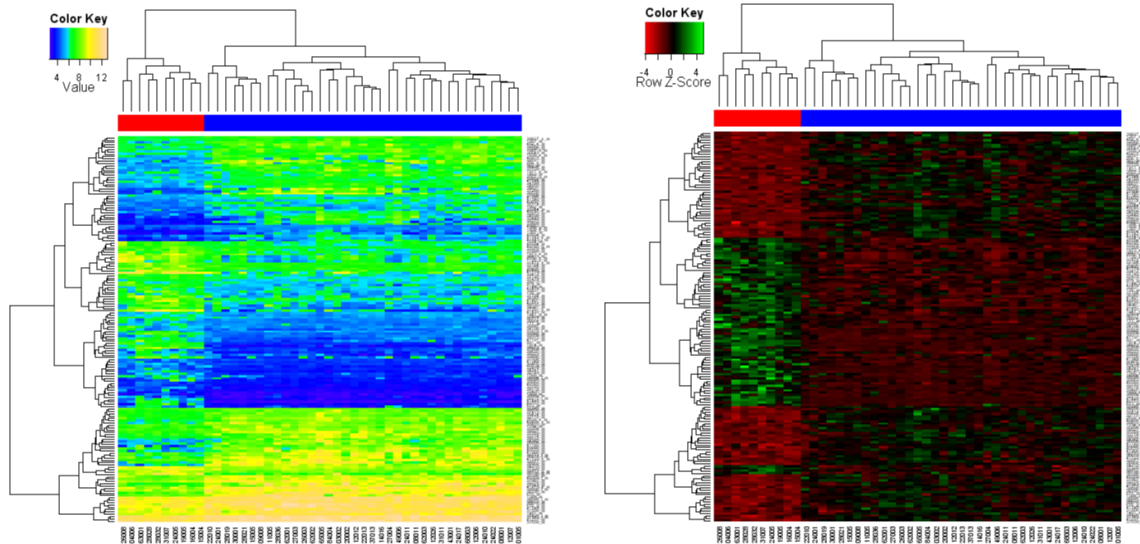
Nature Methods Point of View





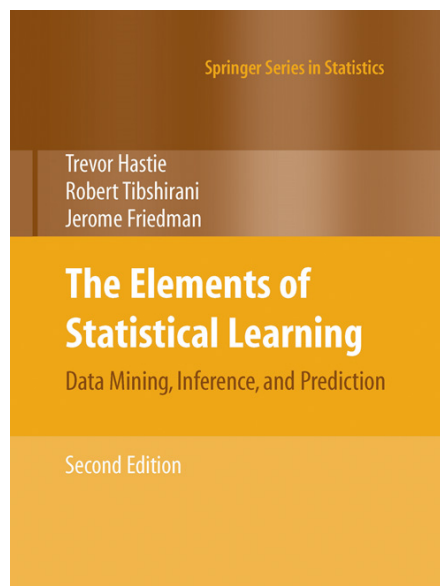
R package dichromat





http://www2.warwick.ac.uk/fac/sci/moac/people/students/peter_cock/r/heatmap/

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Nonetheless, there are a few small concerns. The book has beautiful graphics that brilliantly illustrate the points, provided that one is not red-green colorblind (about 12% of males, and a very small percentage of females). This oversight will plague many readers, and it is very unfortunate that a different choice of color schemes was not made early in the process of writing. We hope the second edition will correct this problem.

David Banks

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