Wizualizacja danych

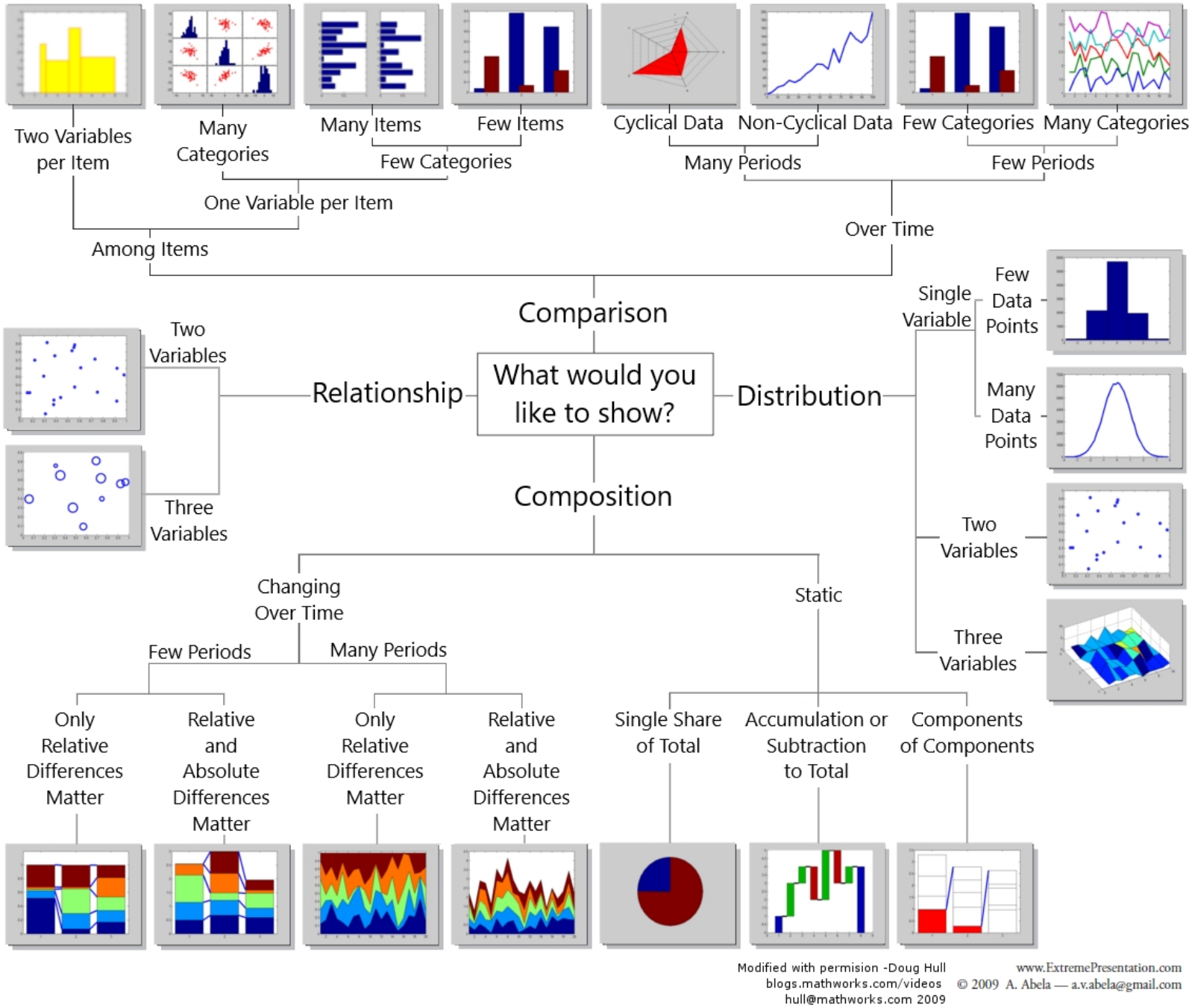
Wykład 2: Podstawowe rodzaje wykresów

Mariusz Tarnopolski

Instytut Astronomii UMK

DataViz ©2024

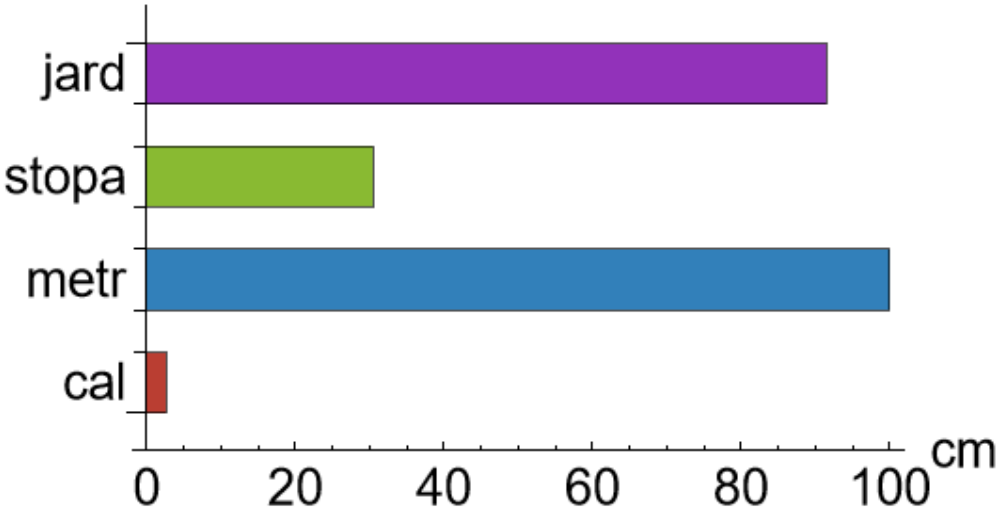


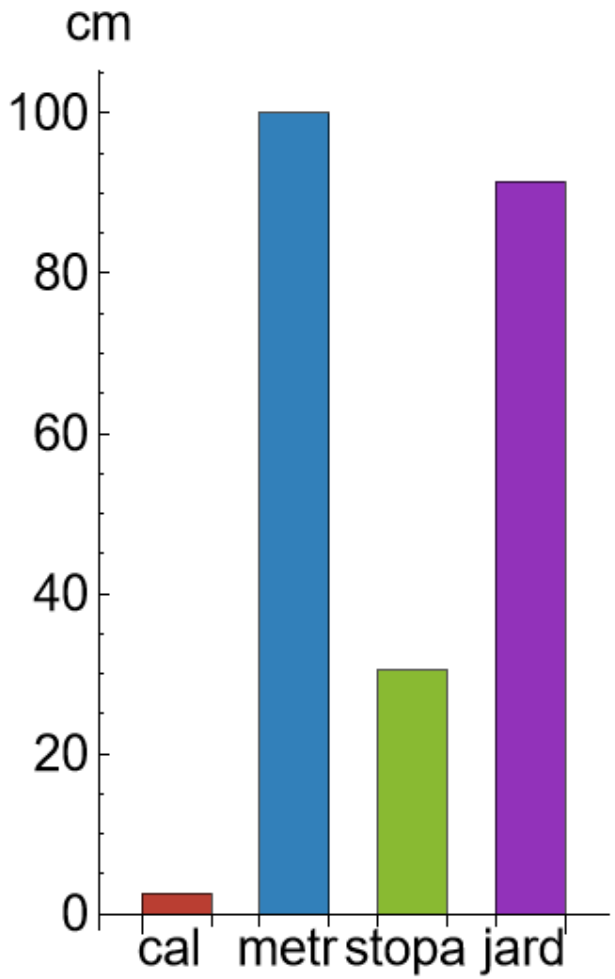


Modified with permision -Doug Hull
blogs.mathworks.com/videos
hull@mathworks.com 2009

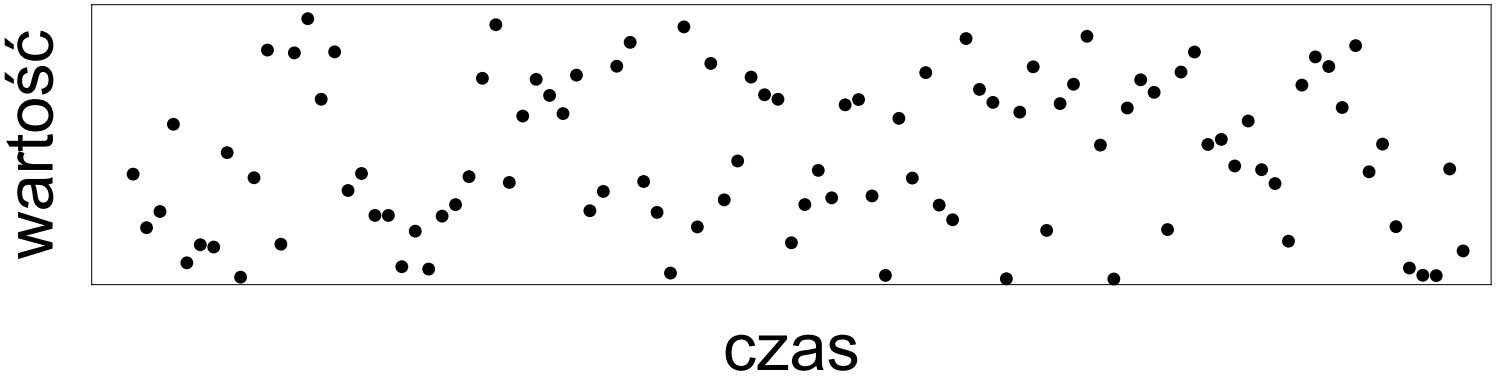
www.ExtremePresentation.com
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Wykres słupkowy/kolumnowy

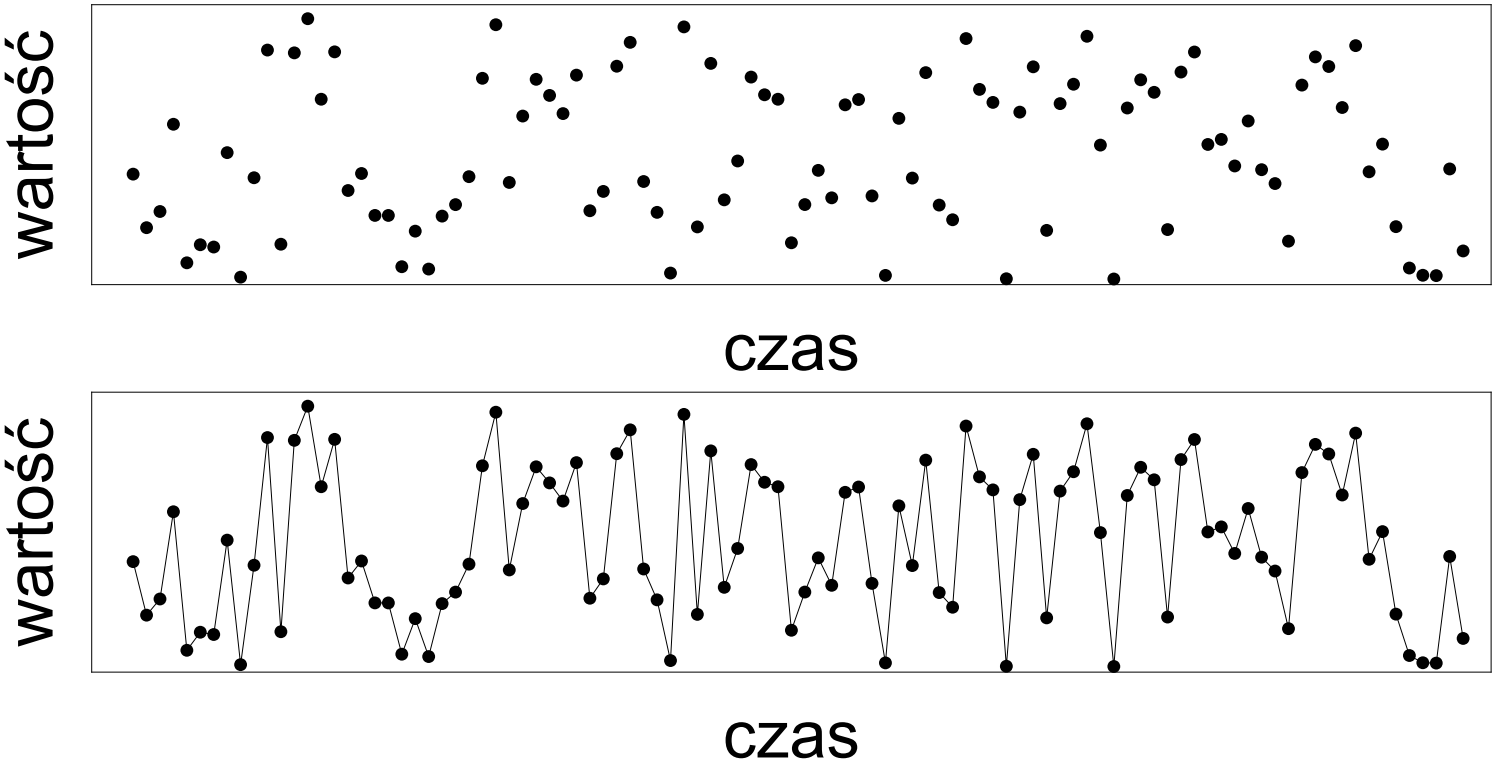




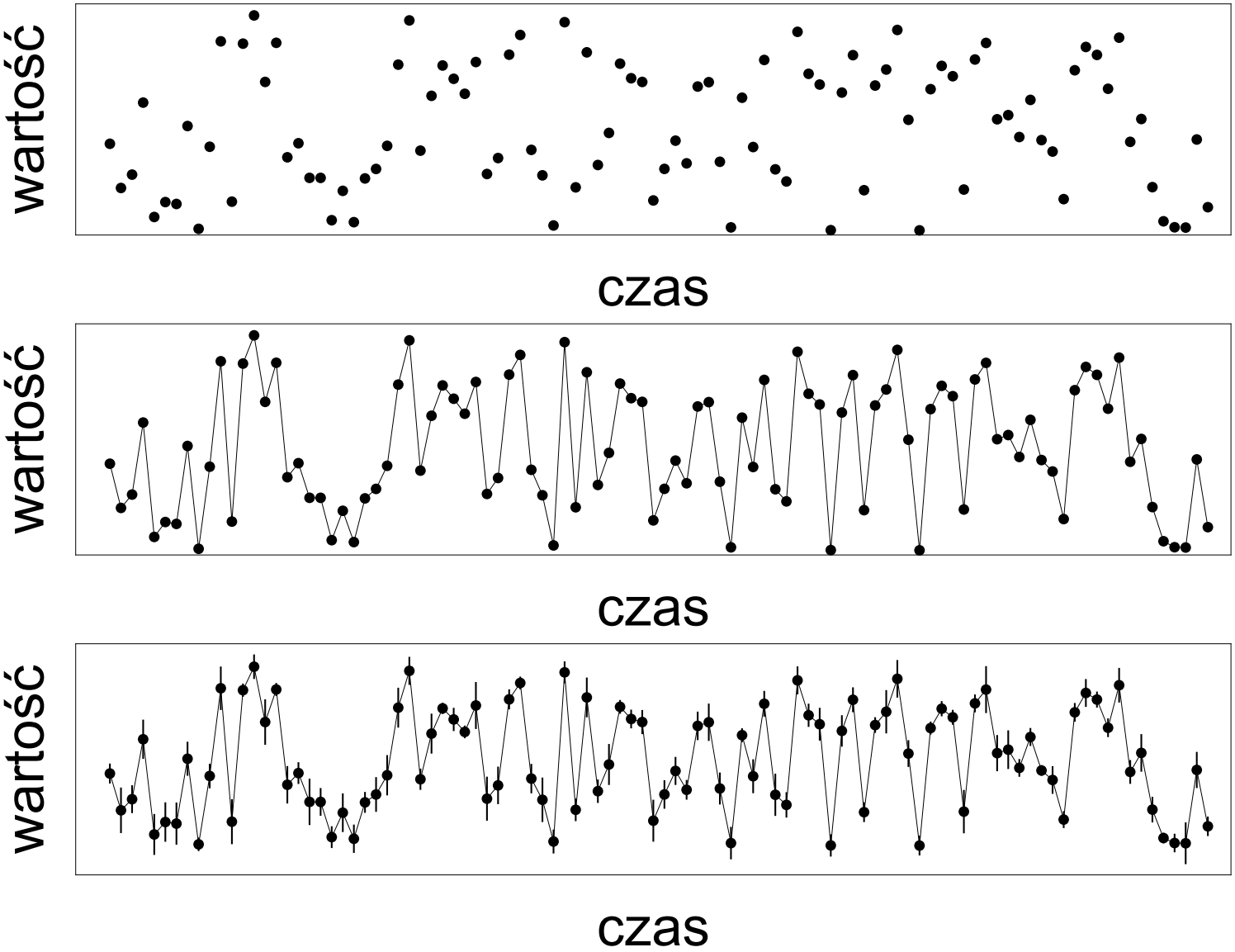
Szeregi czasowe



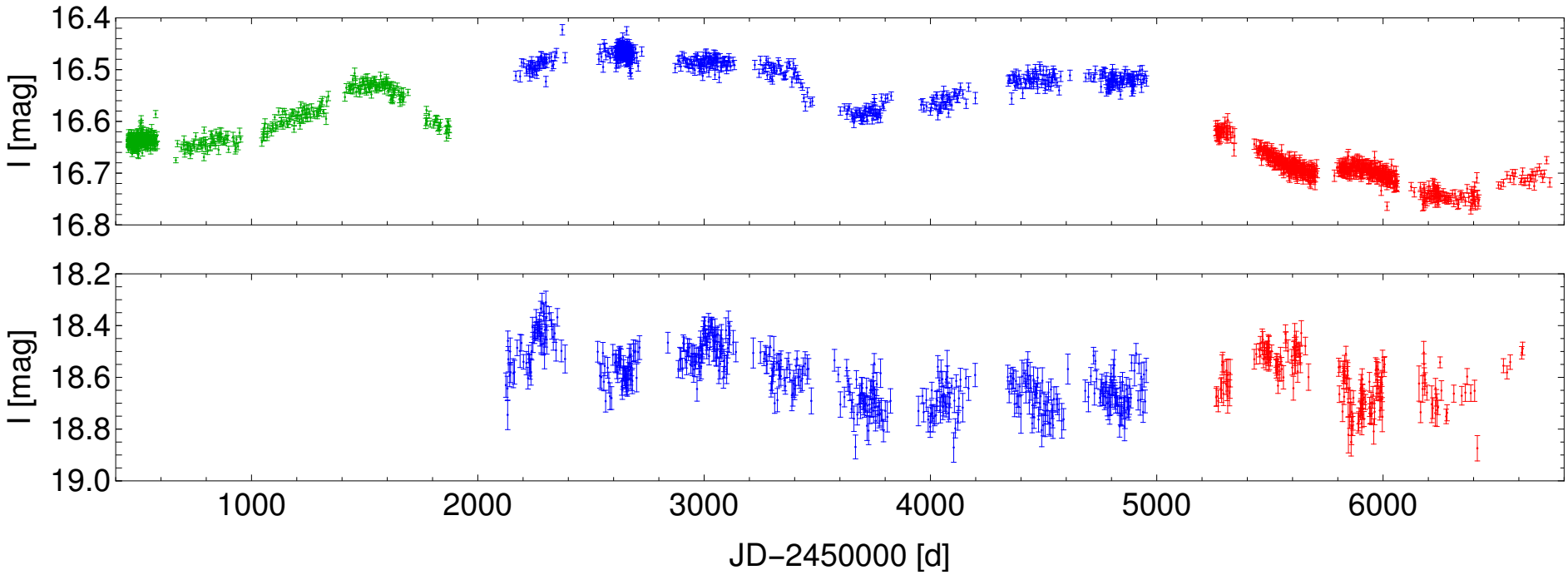
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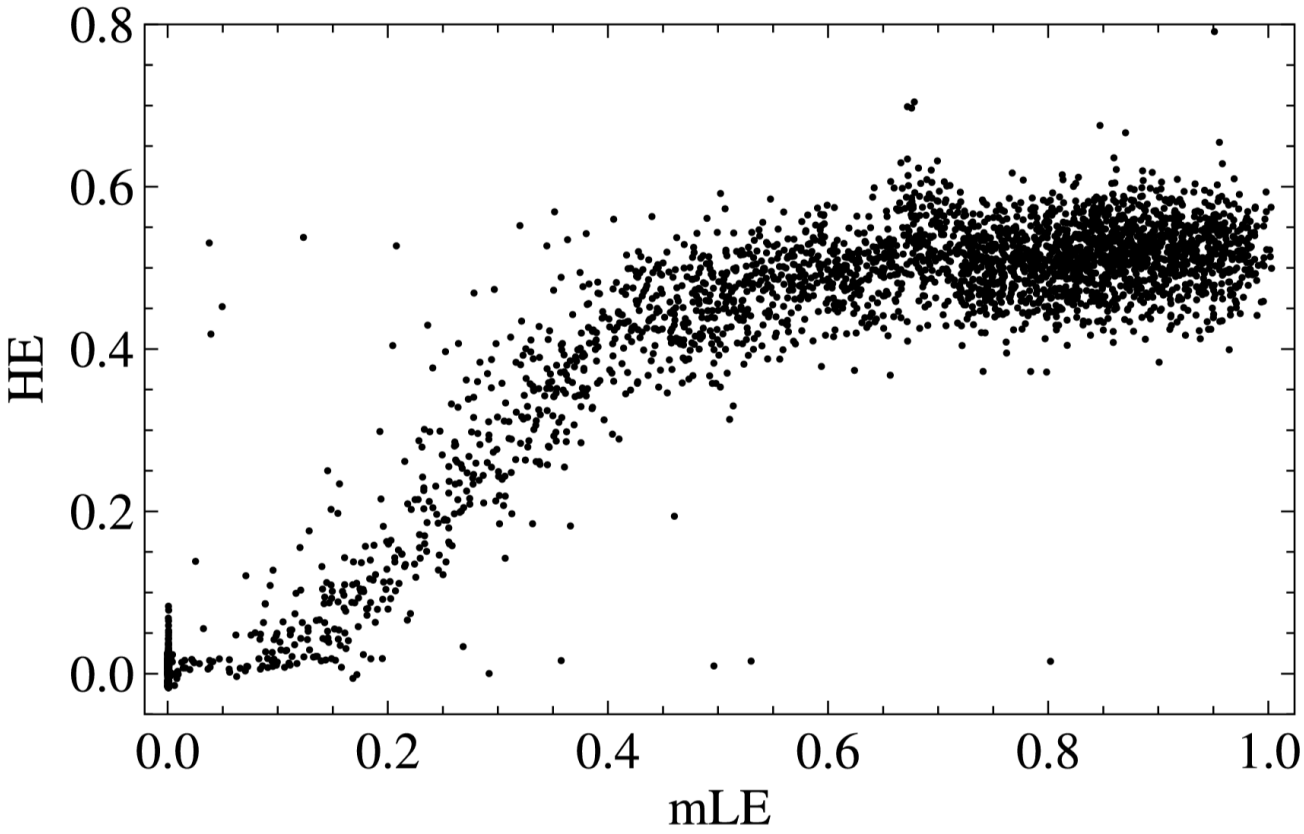


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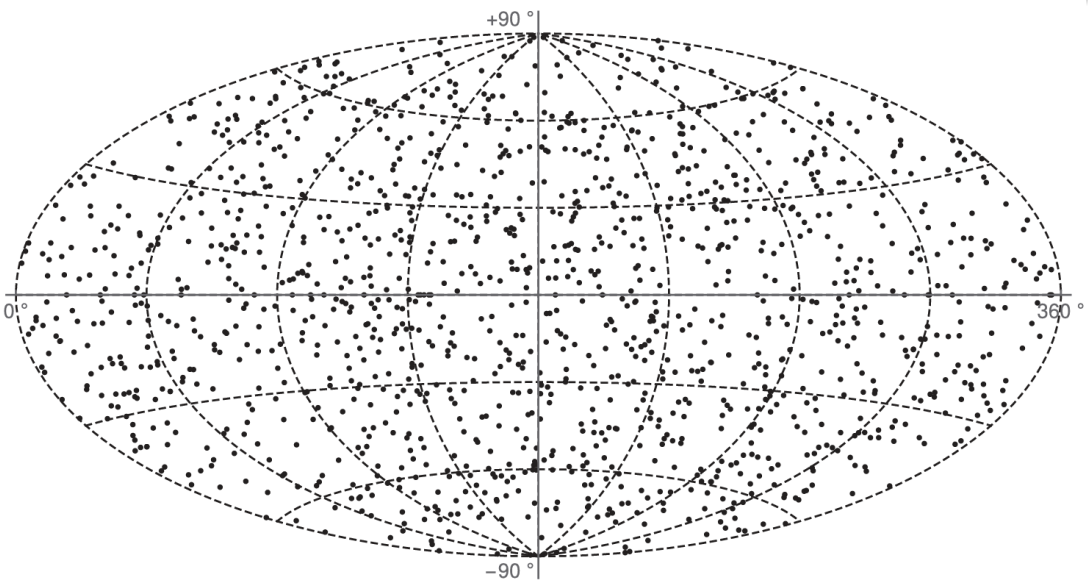
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Zależności (wykres punktowy, *scatterplot*)



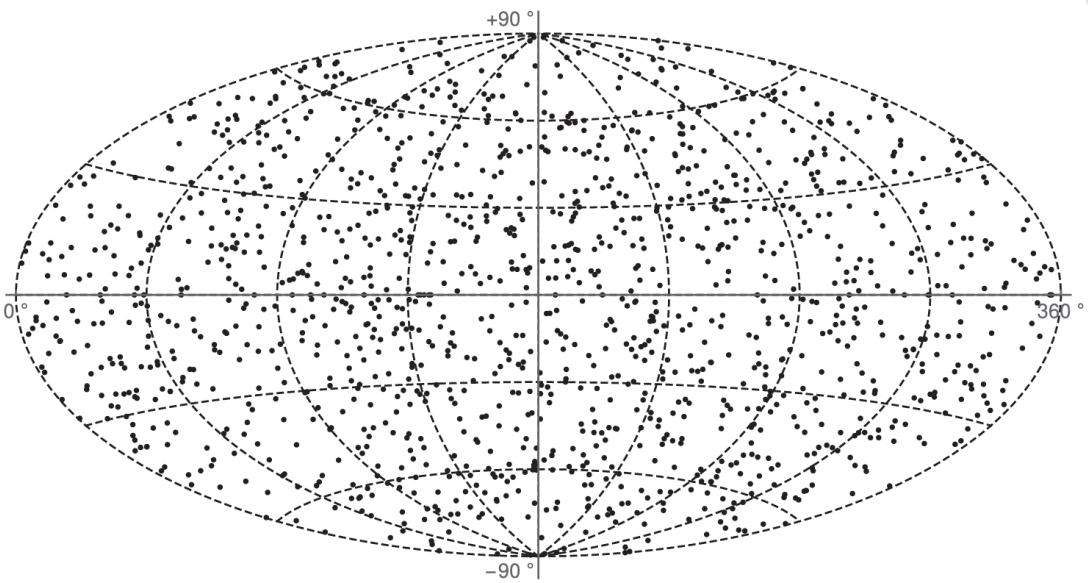
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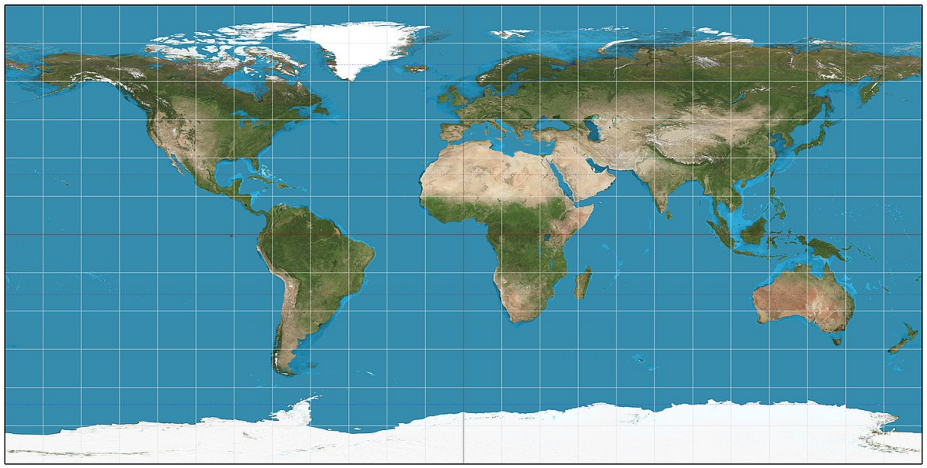
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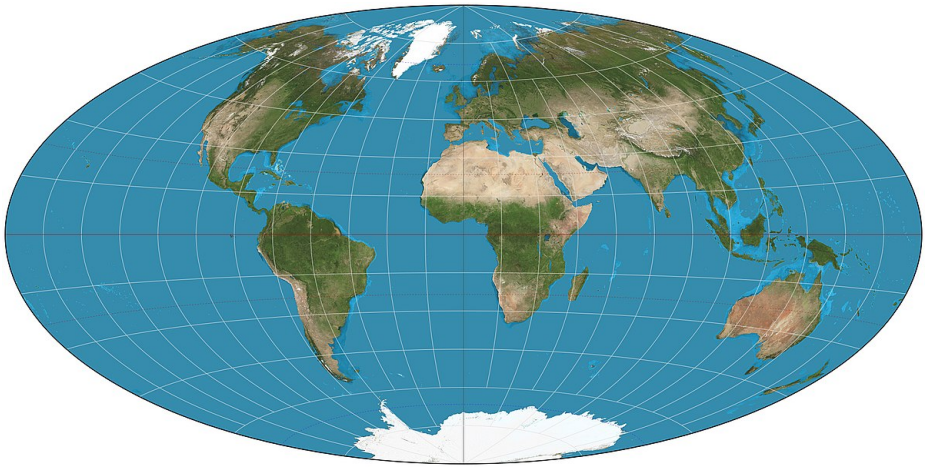


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https://en.wikipedia.org/wiki/List_of_map_projections

Zależności (wykres punktowy, *scatterplot*)

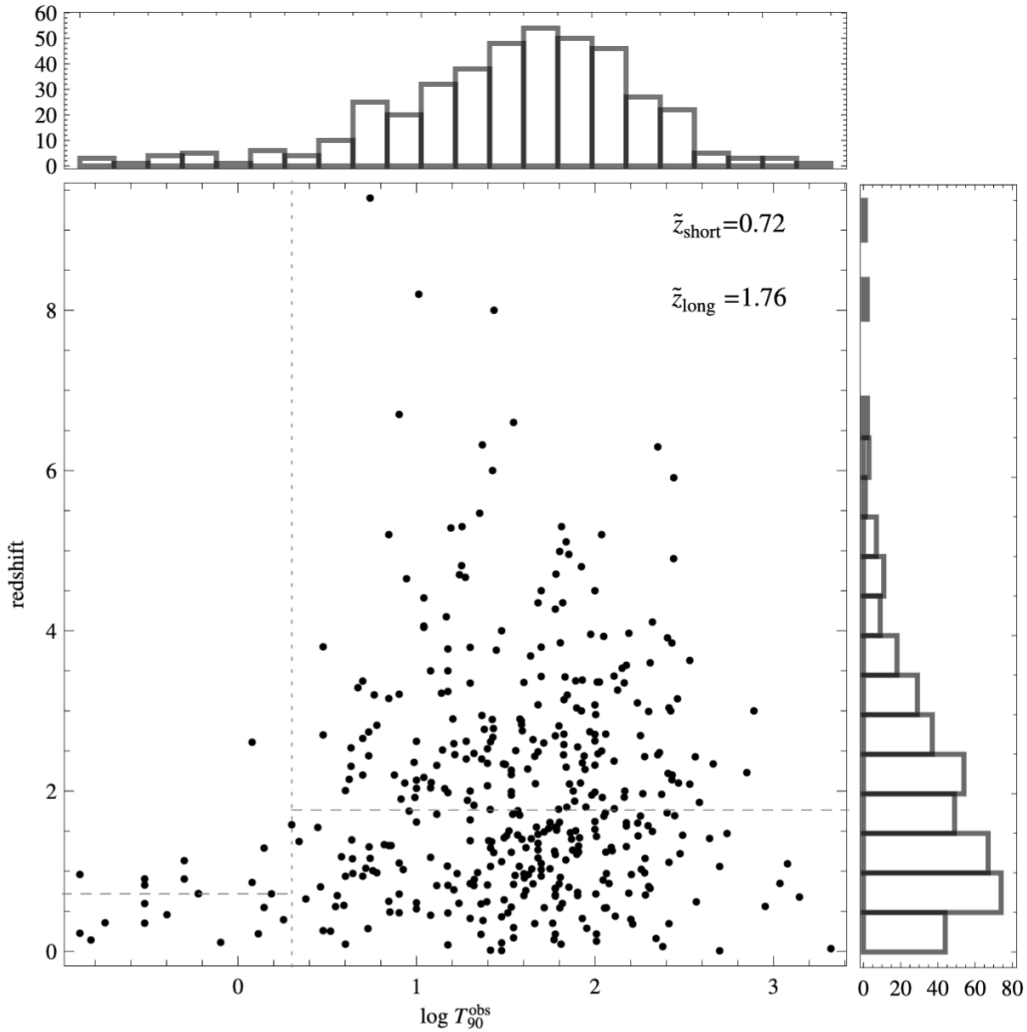






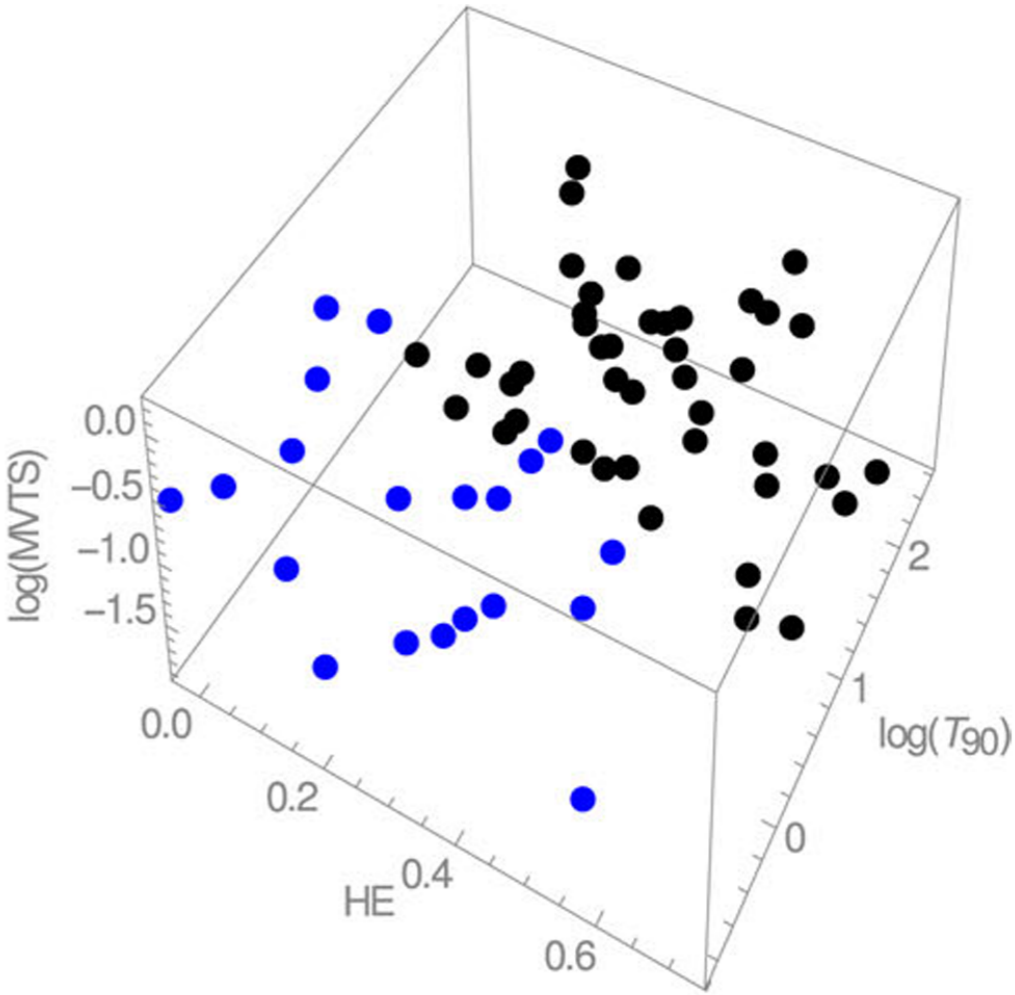
https://doi.org/10.1093/mnras/stx2356
https://en.wikipedia.org/wiki/List_of_map_projections

Zależności — wykres punktowy + rozkłady brzegowe



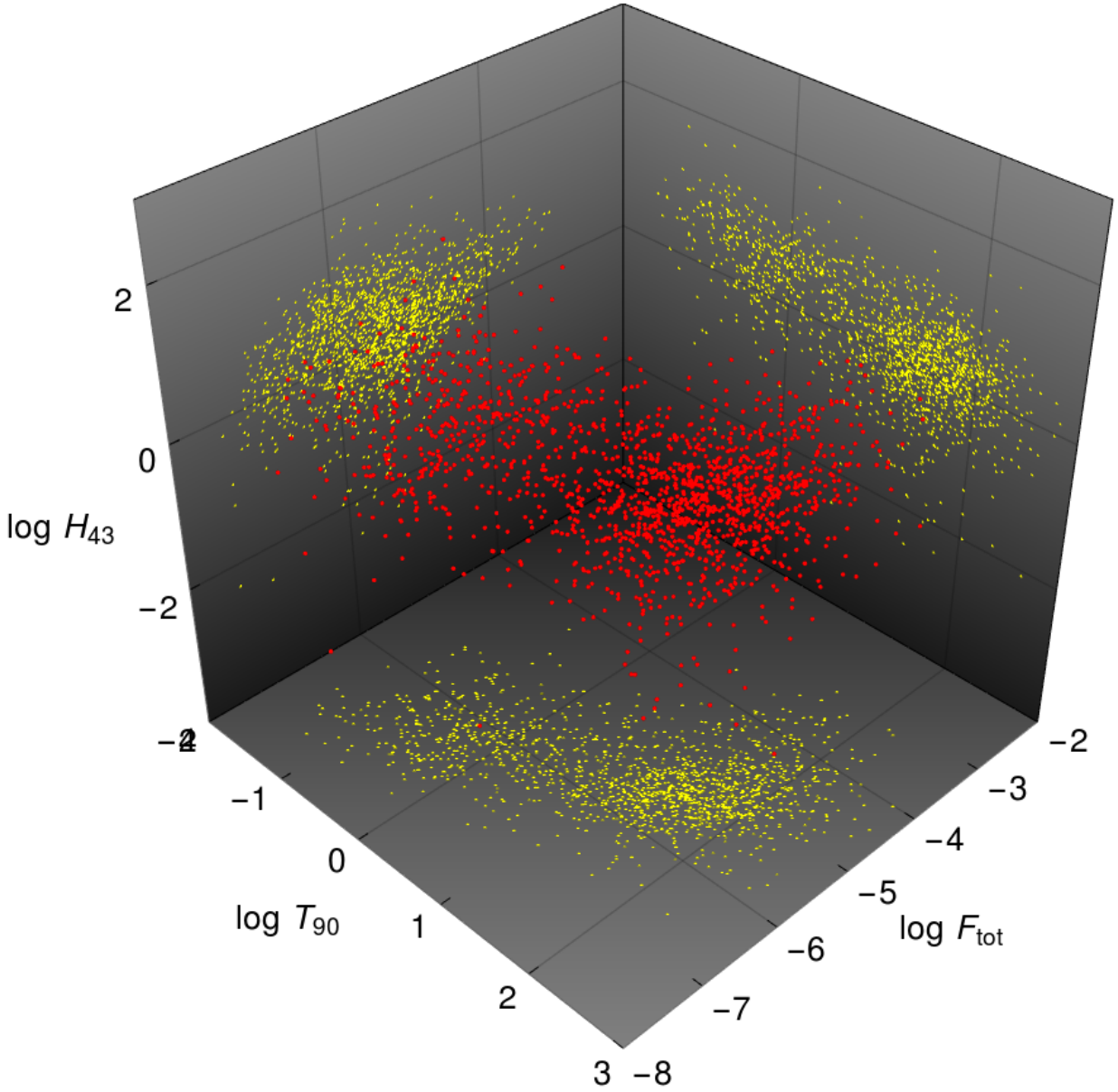
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Zależności 3D

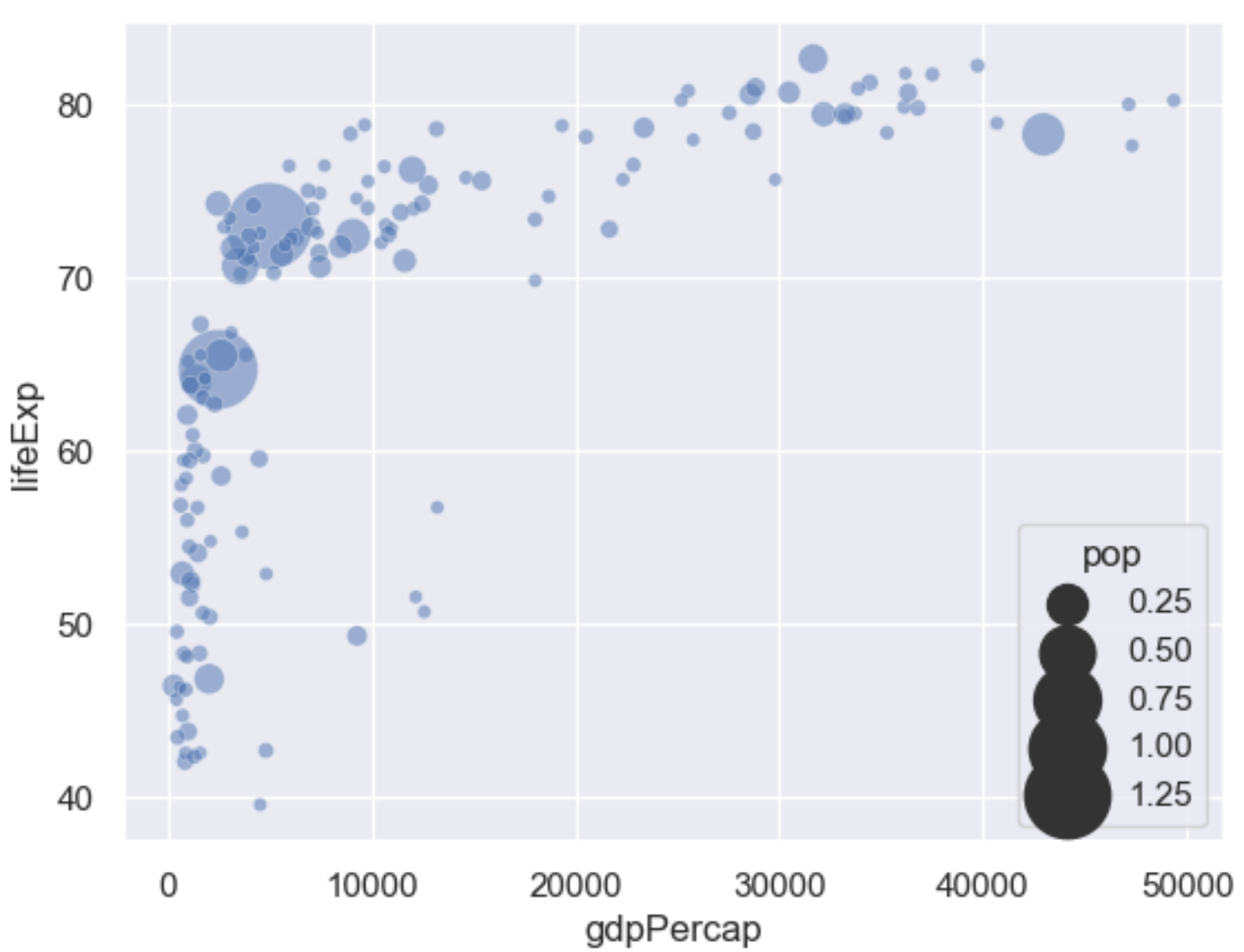


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Zależności 3D

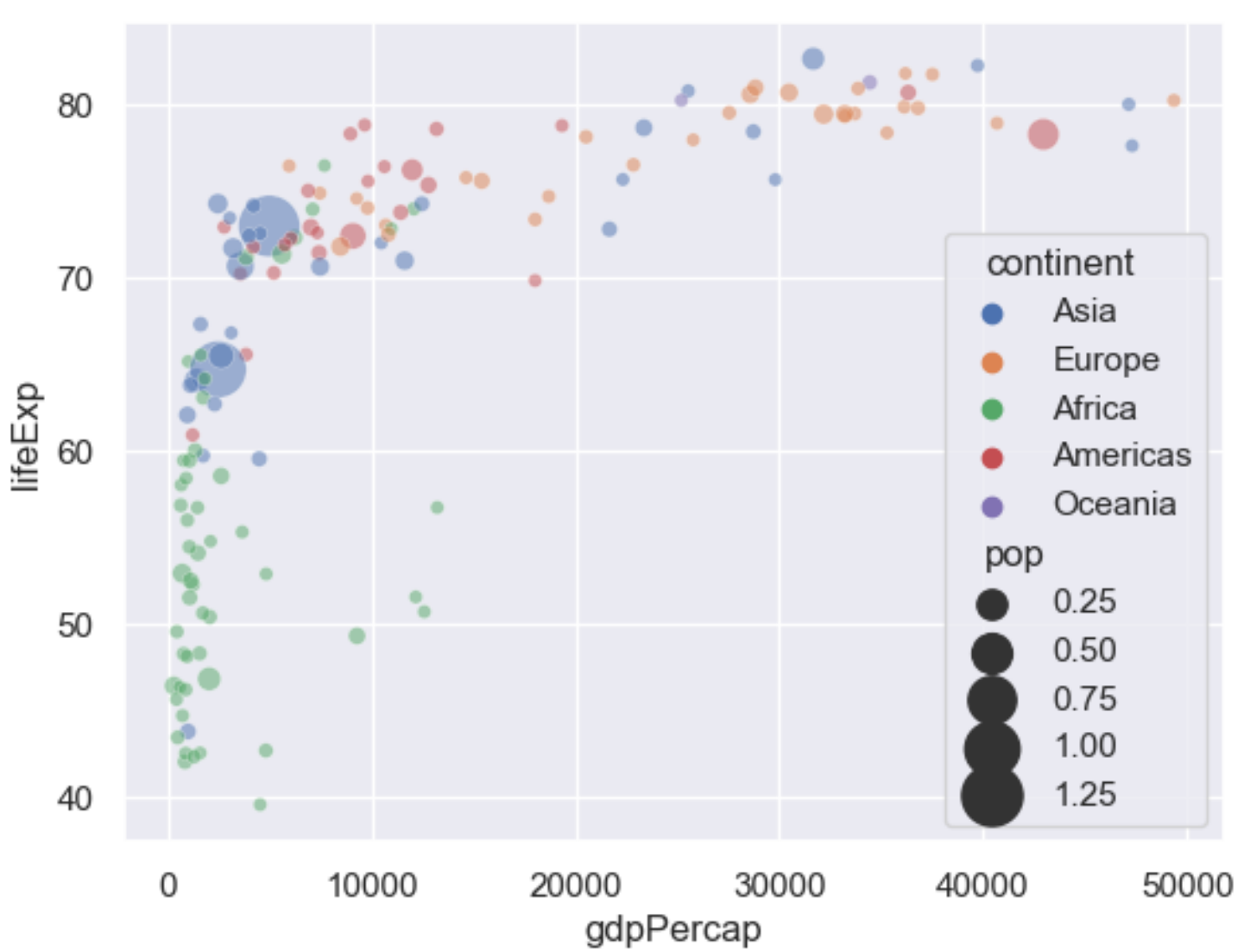


Zależności 3D — diagram bąbelkowy (*bubble chart*)



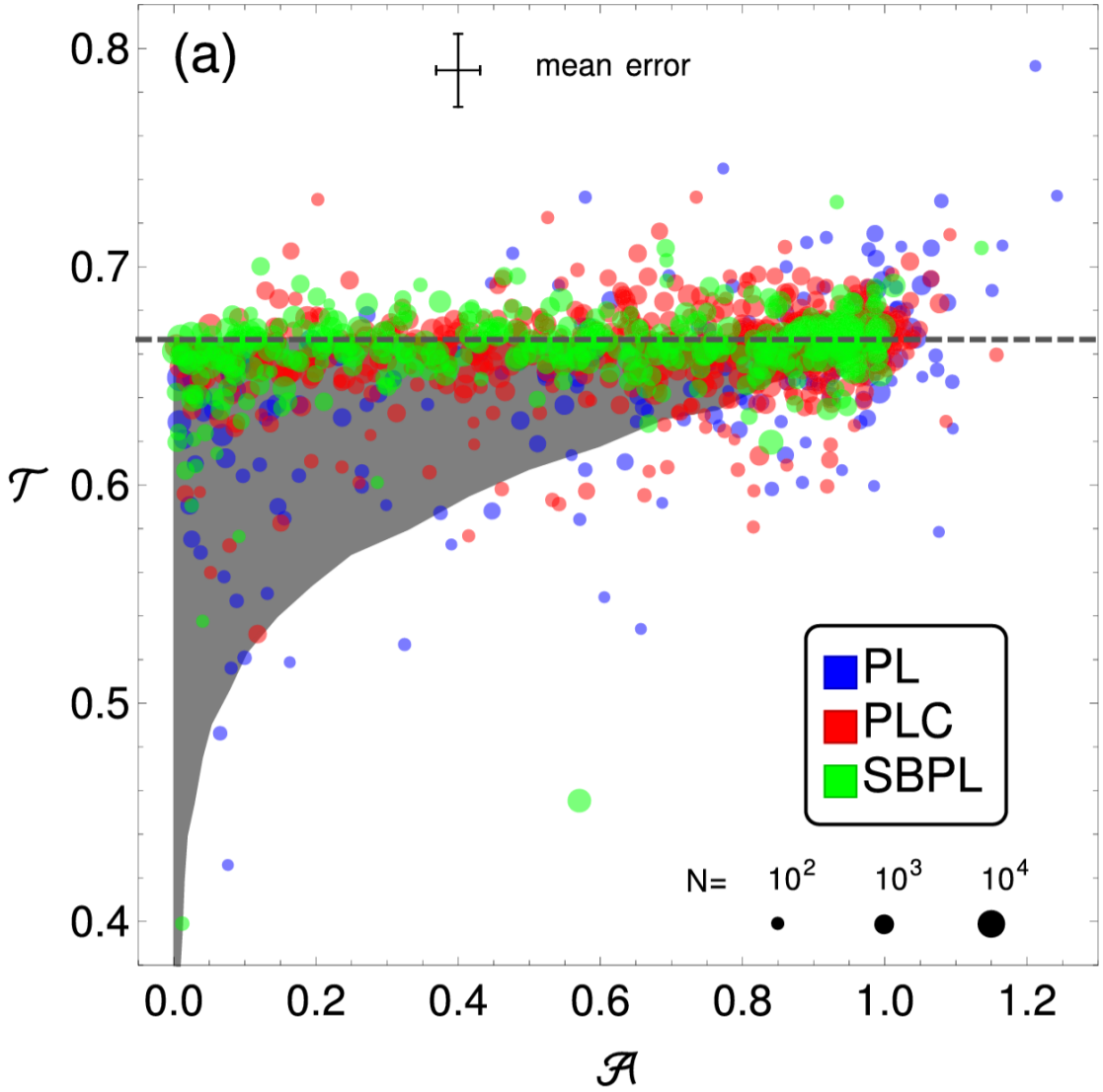
https://python-graph-gallery.com/bubble-plot-with-seaborn/

Zależności 3D — diagram bąbelkowy (*bubble chart*)



https://python-graph-gallery.com/bubble-plot-with-seaborn/

Zależności 3D — diagram bąbelkowy (*bubble chart*)



https://doi.org/10.3847/1538-4357/abe5b1

Zależności 3D — diagram bąbelkowy (*bubble chart*)

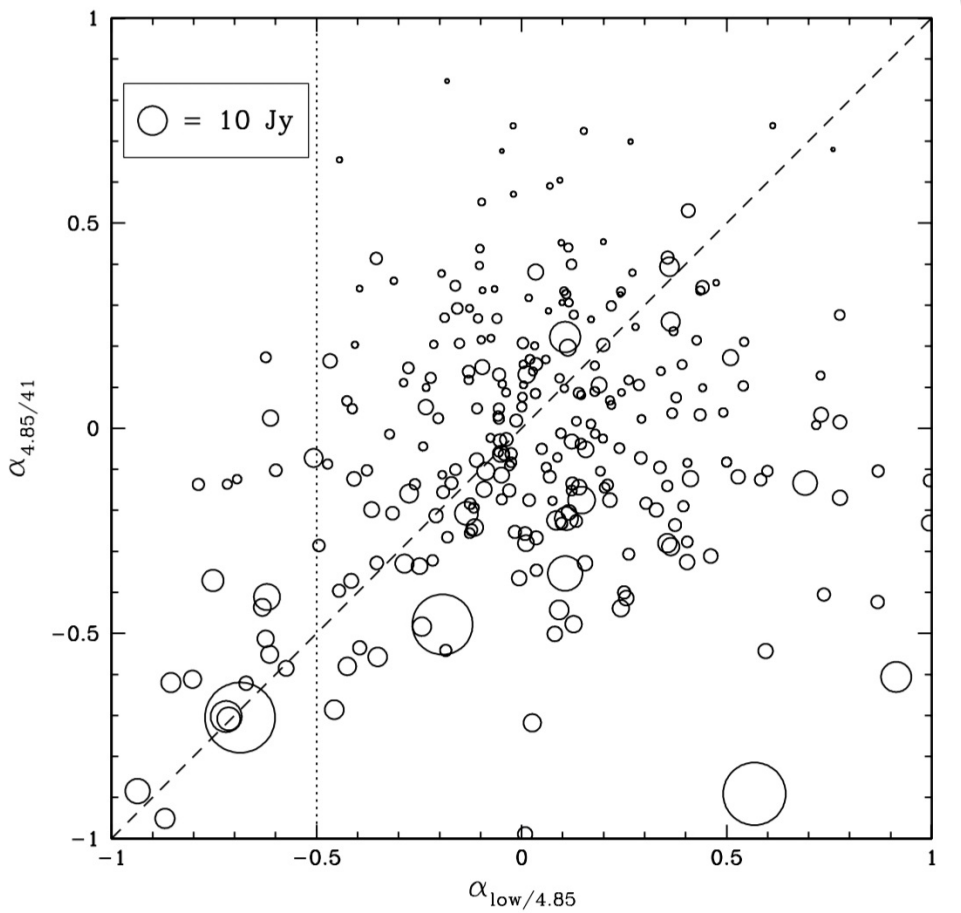
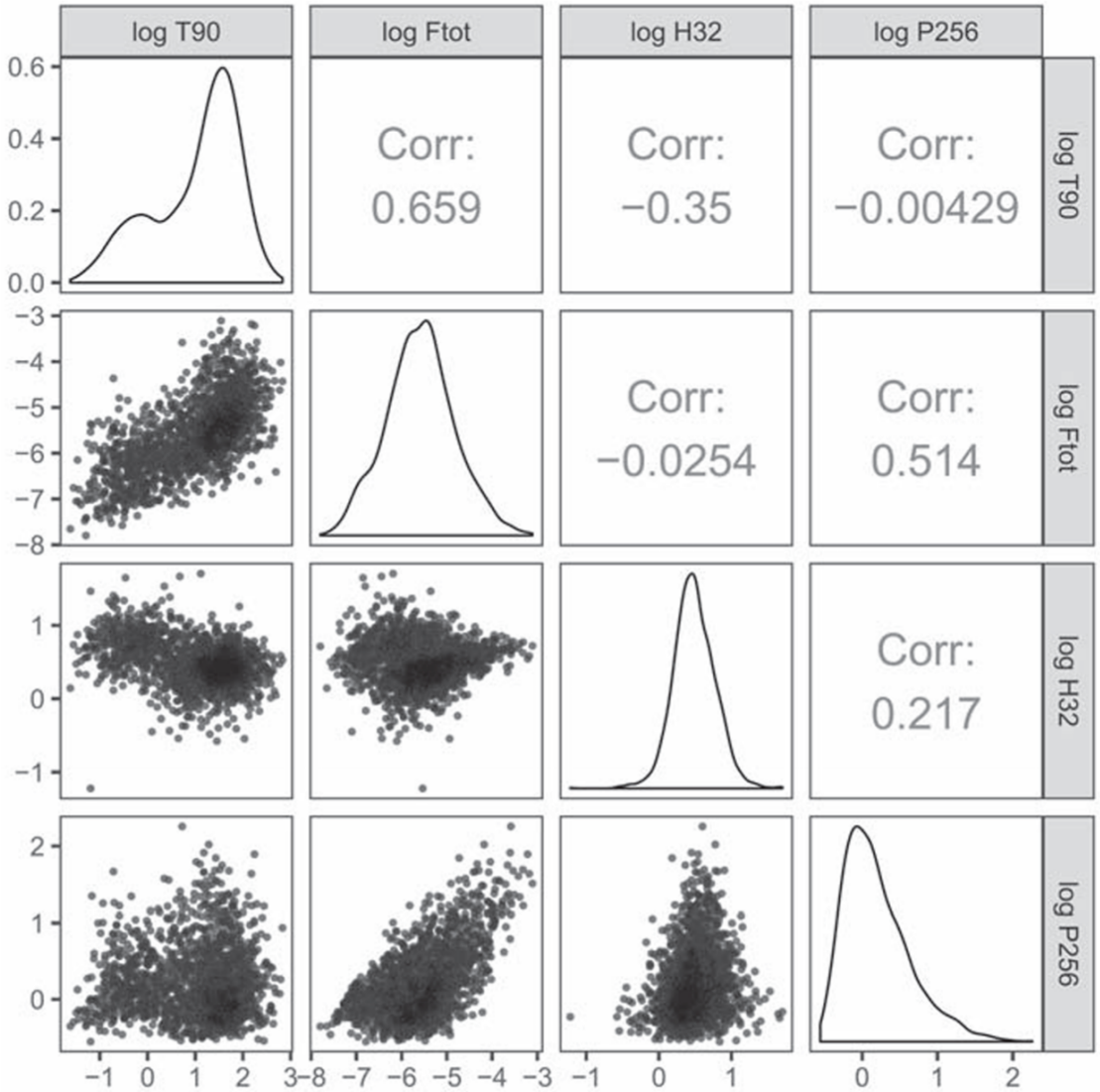


FIG. 5.—Comparison of high-frequency spectral indices to low-frequency spectral indices for *WMAP* sources. $\alpha_{\mathrm{low}/4.8}$ is computed between NVSS or SUMSS, depending on declination, and 4.85 GHz. The size of the circle is proportional to the square root of the flux density at 4.8 GHz. The circle for a 10 Jy source is shown for comparison. Sources in the bottom right are gigahertz-peaked sources.

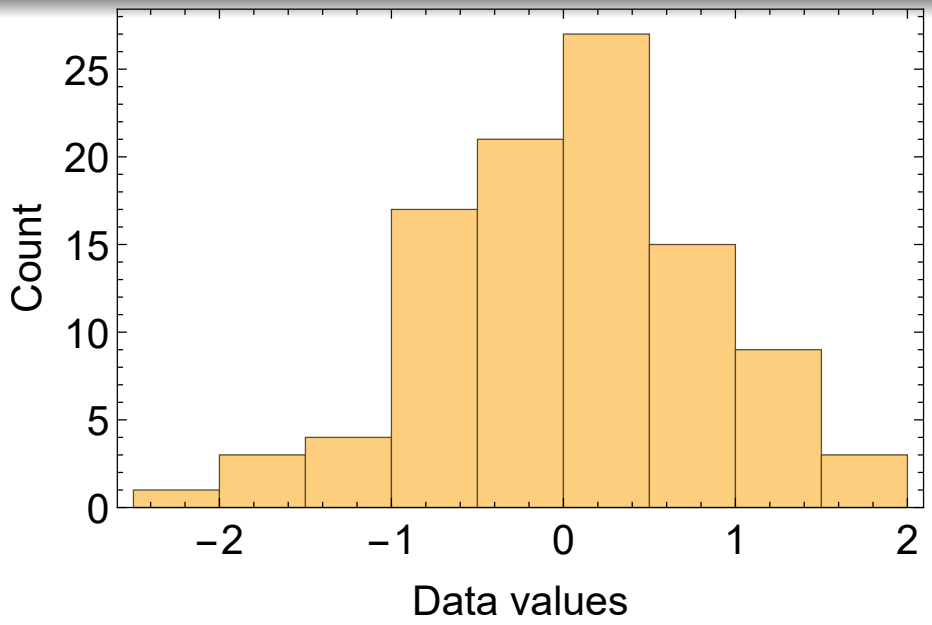
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Zależności nD (gdzie $n \geqslant 3$)

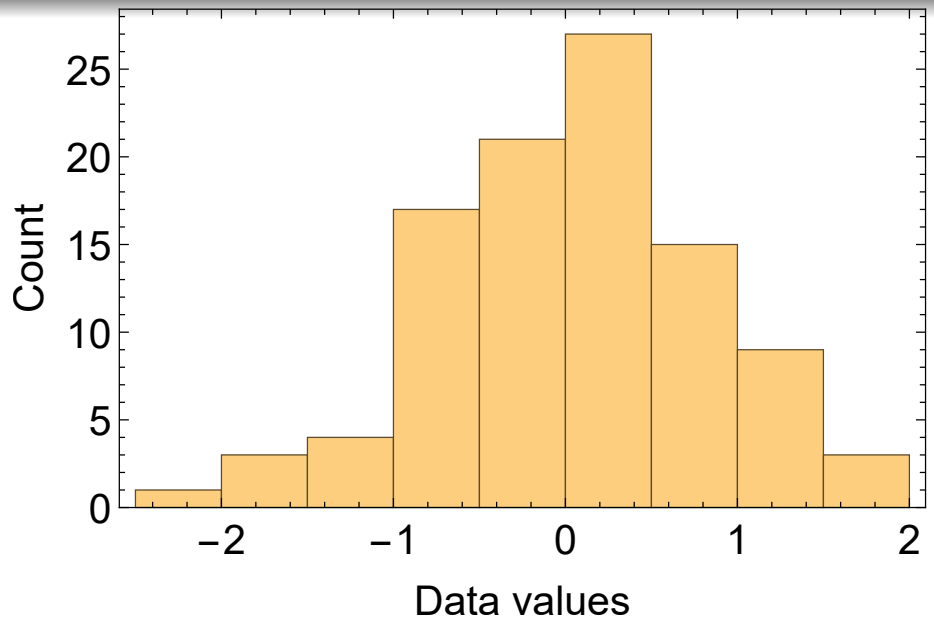


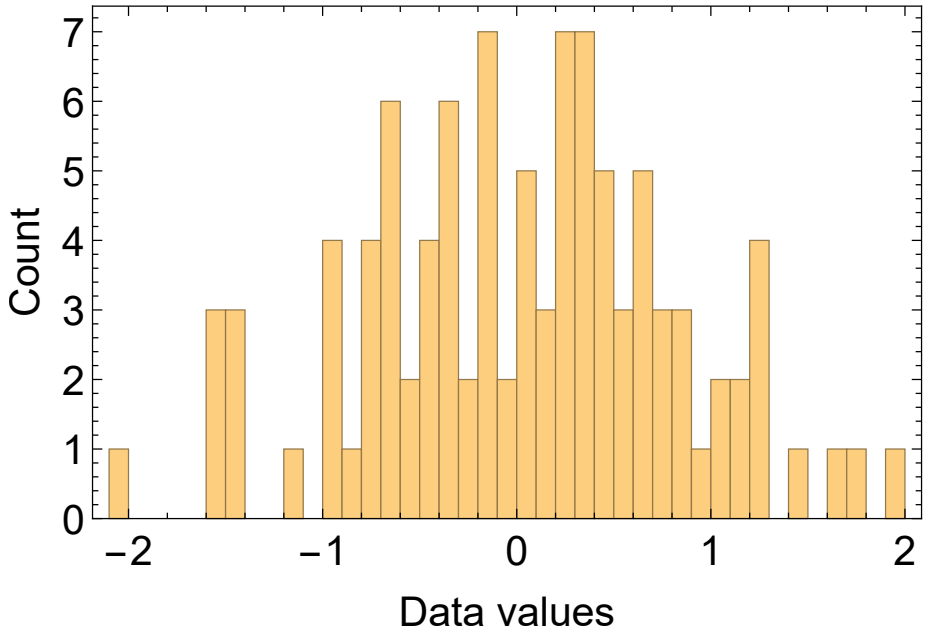
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Rozkłady statystyczne (1D)

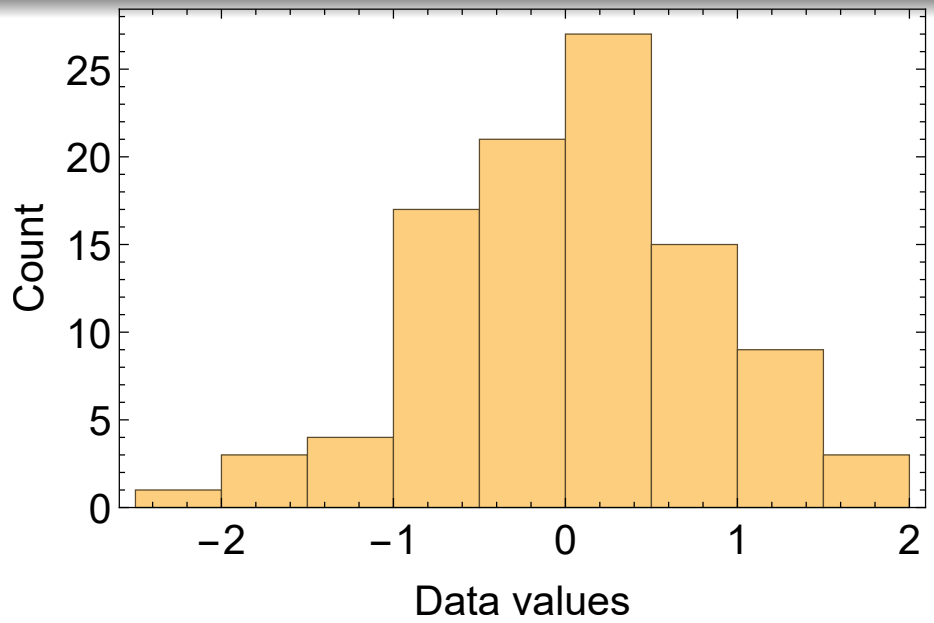


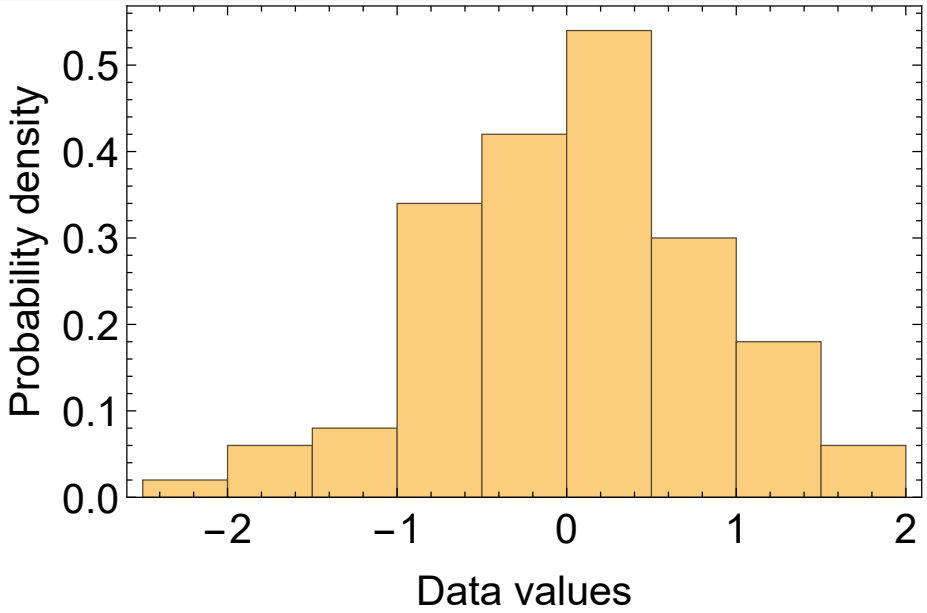
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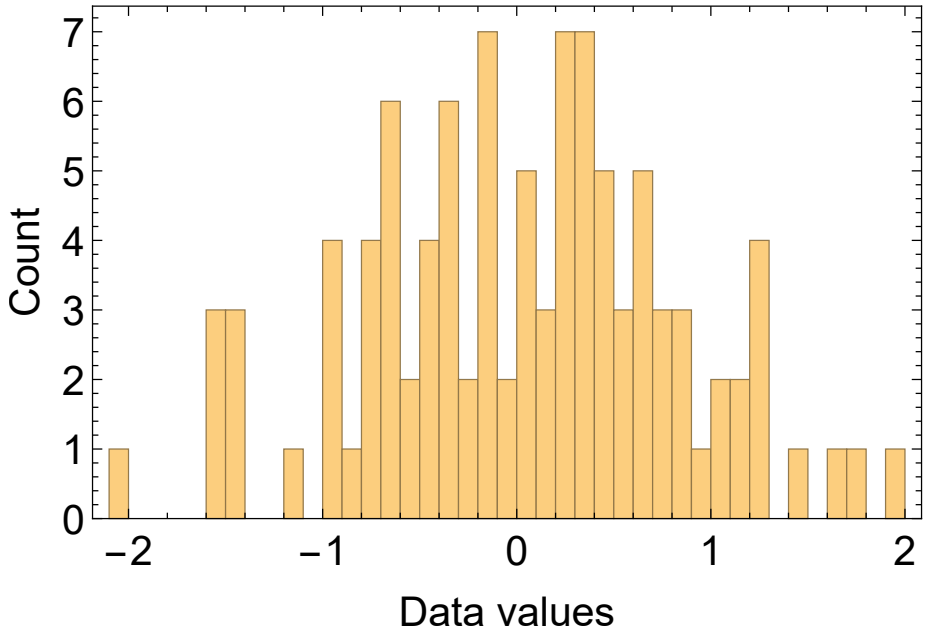




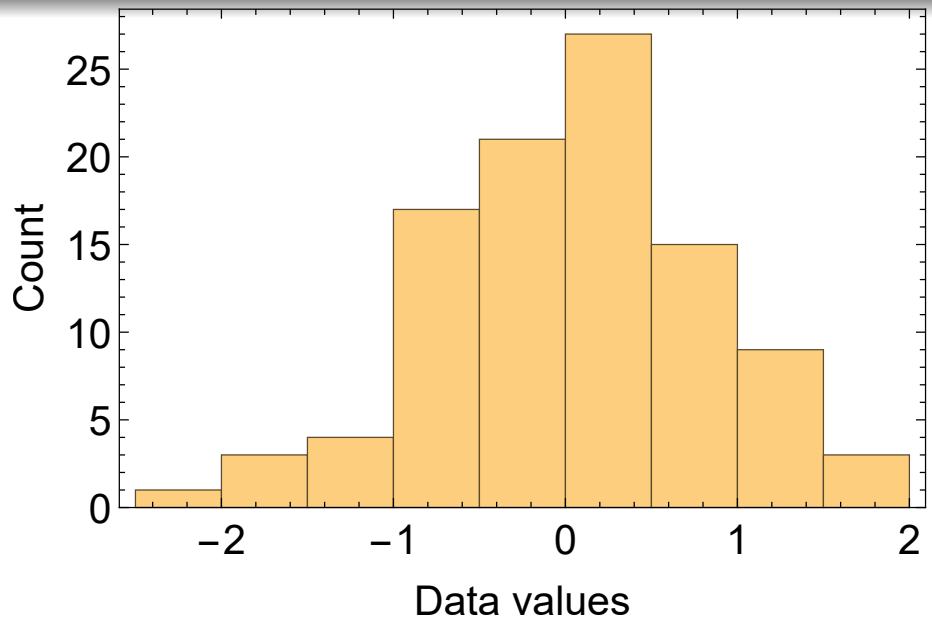
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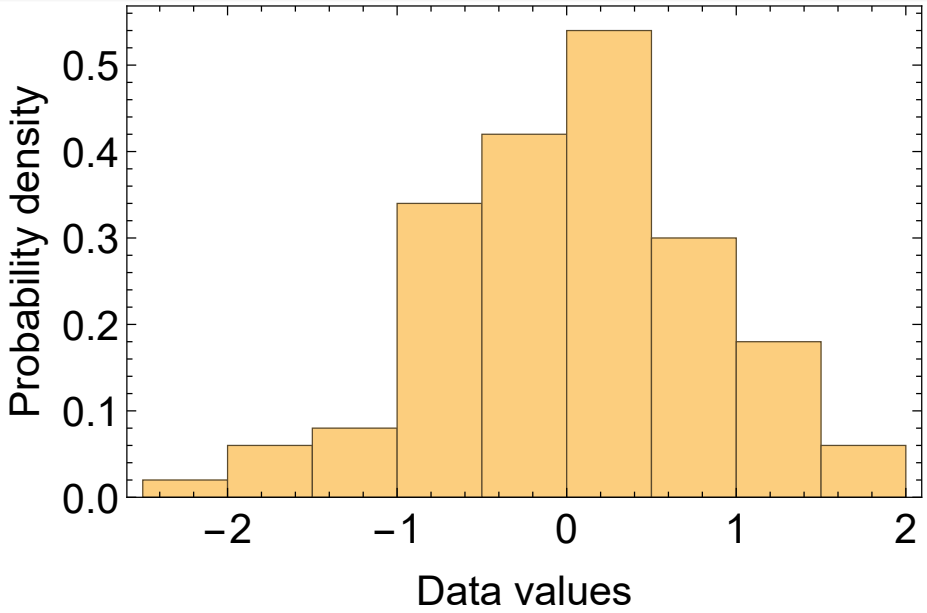


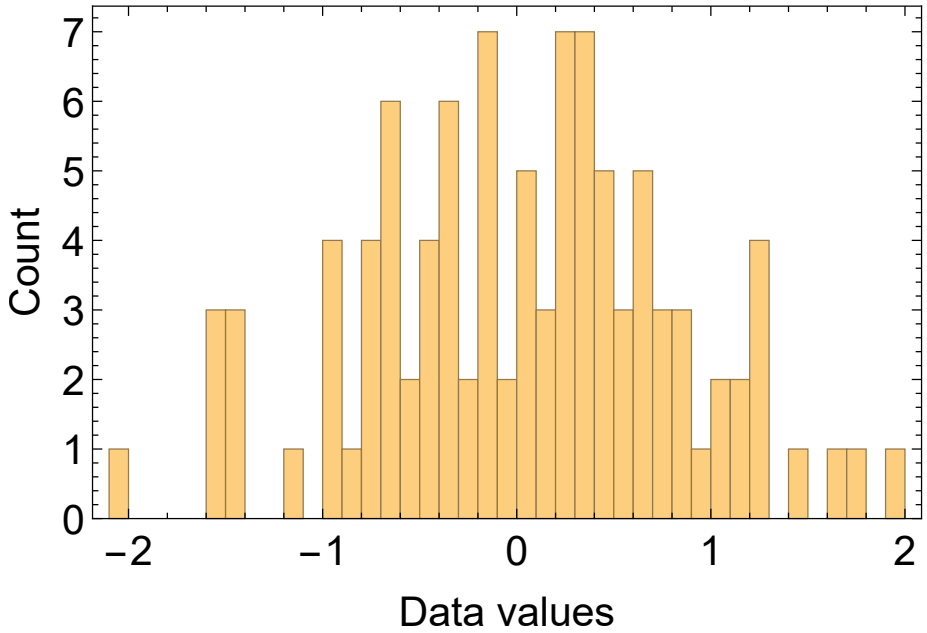


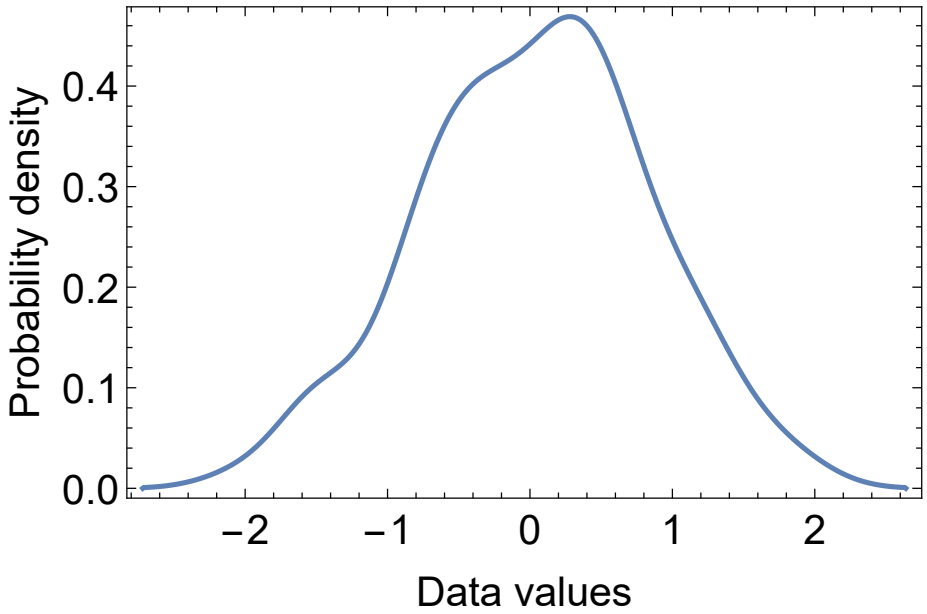


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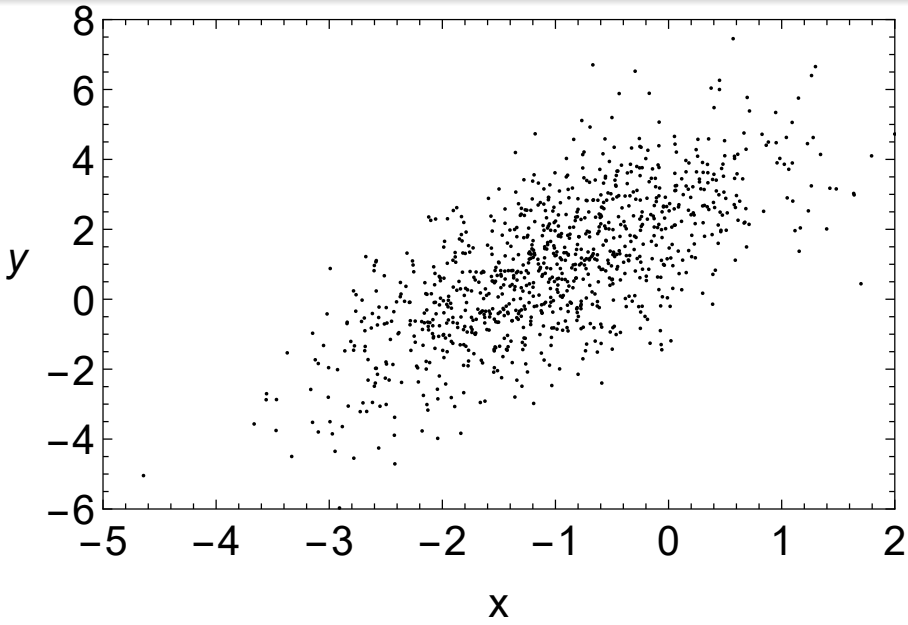




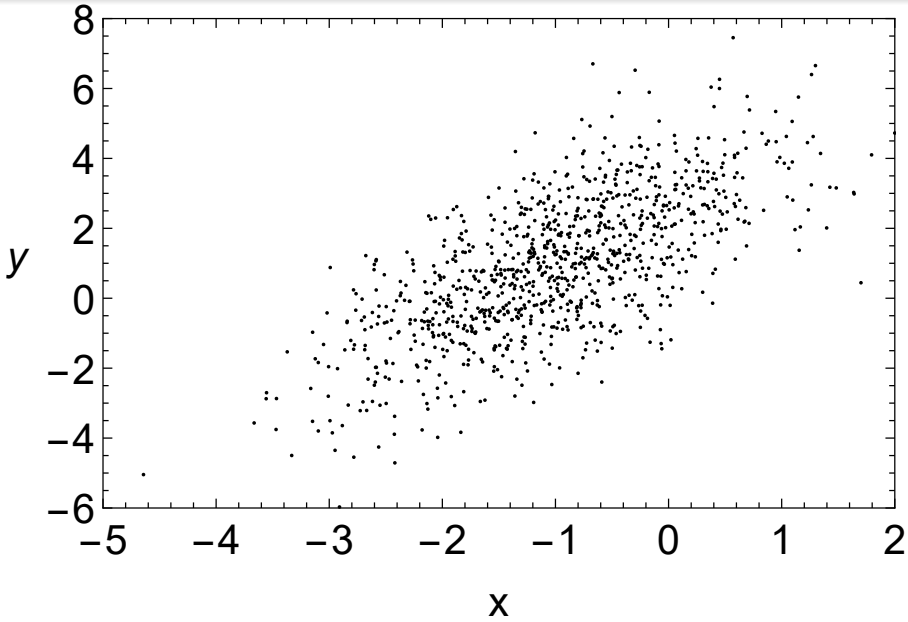


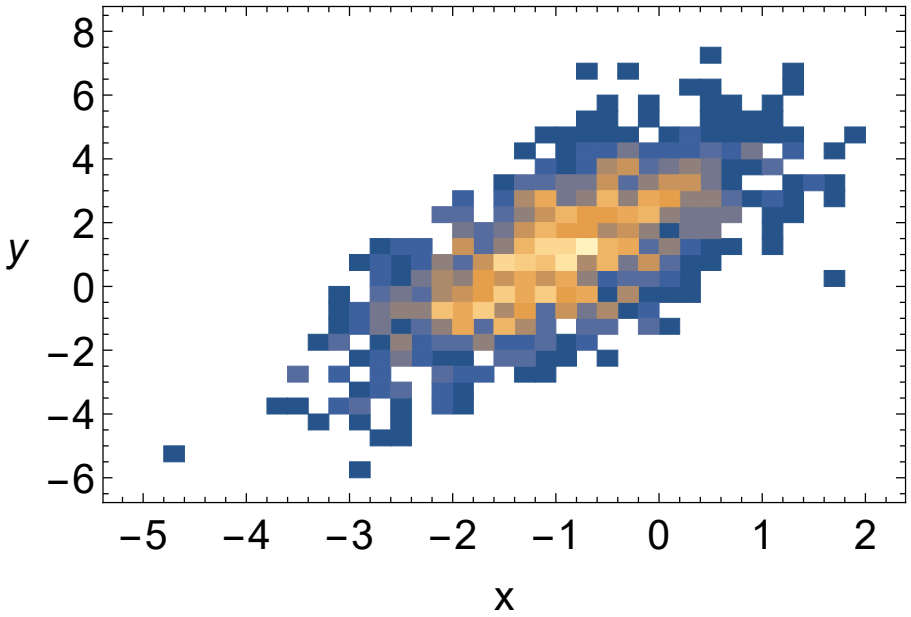


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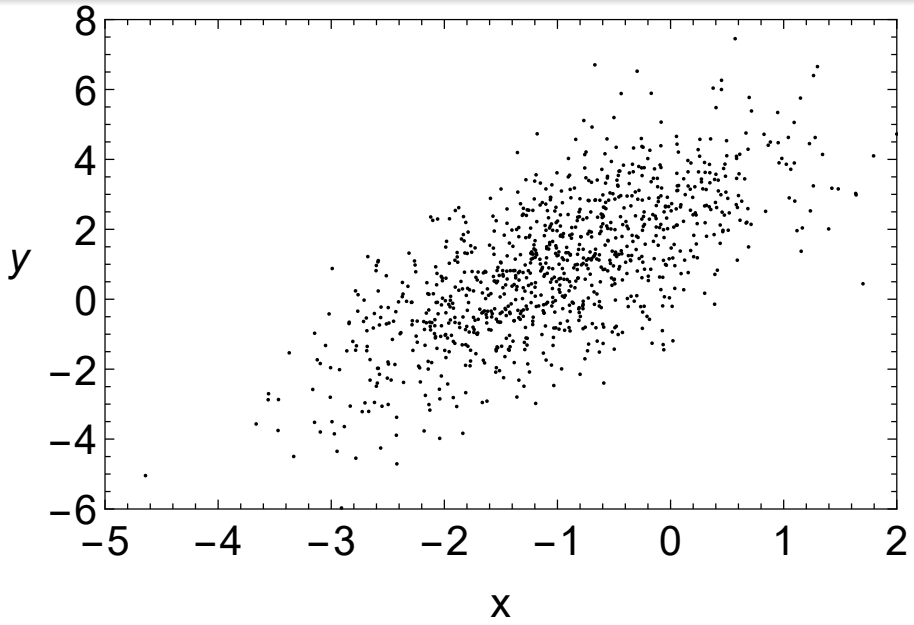


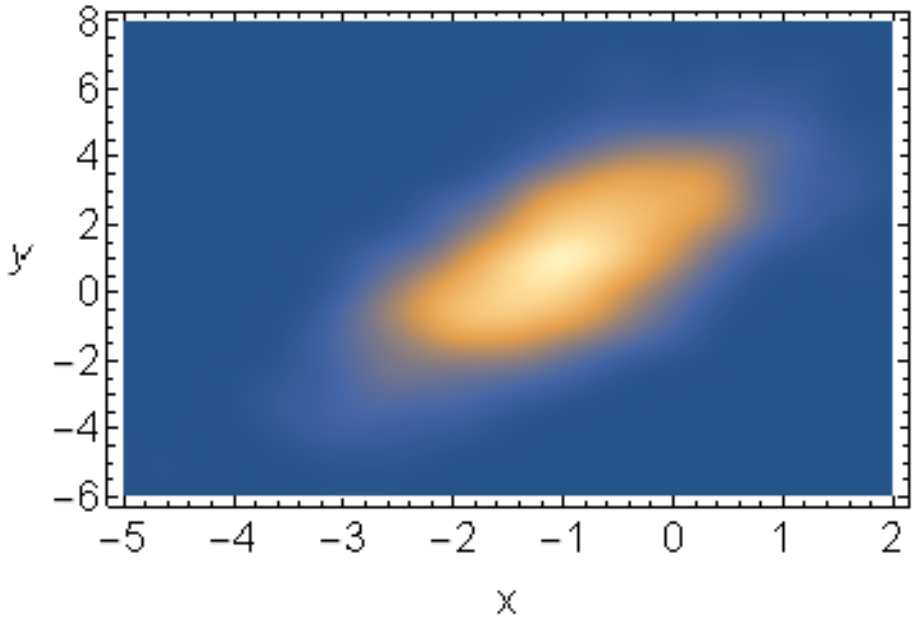
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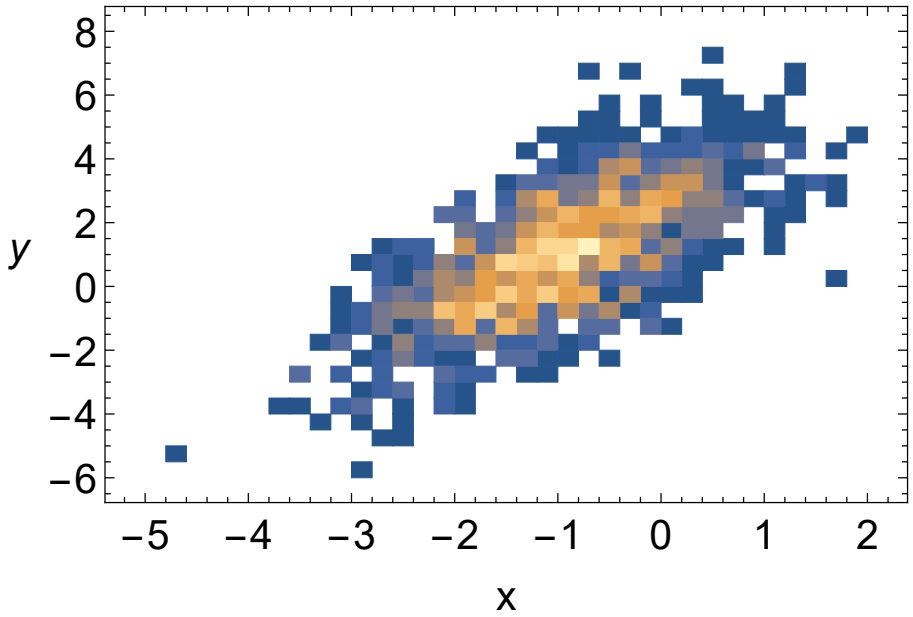




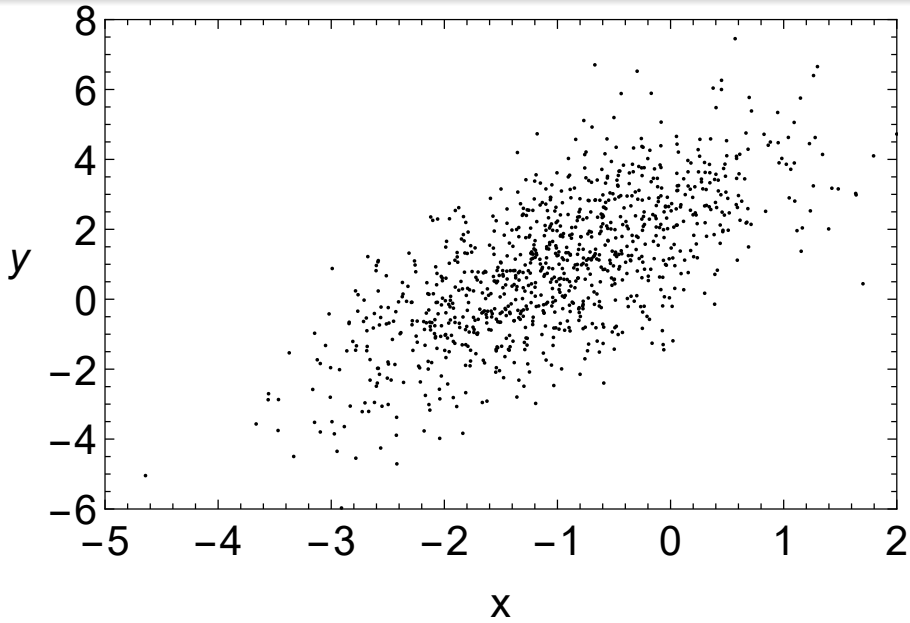
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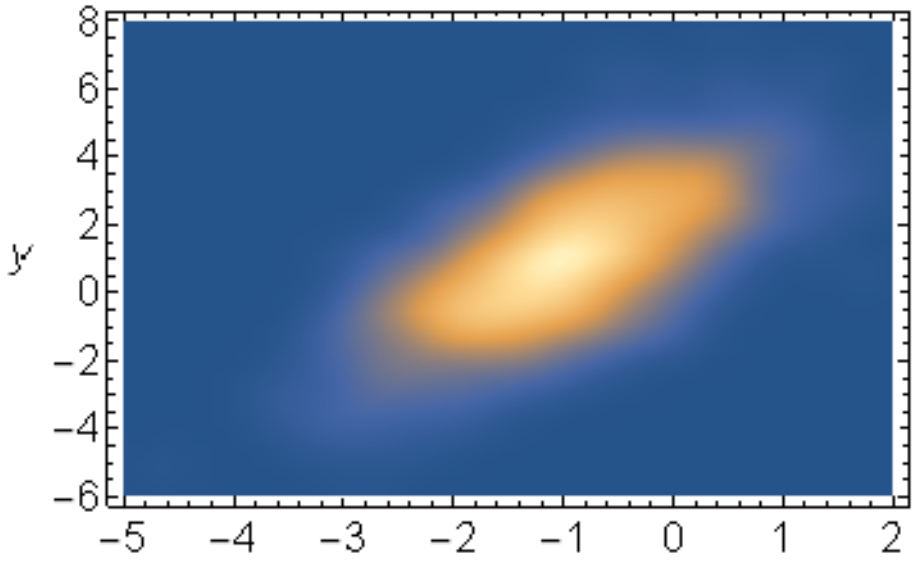


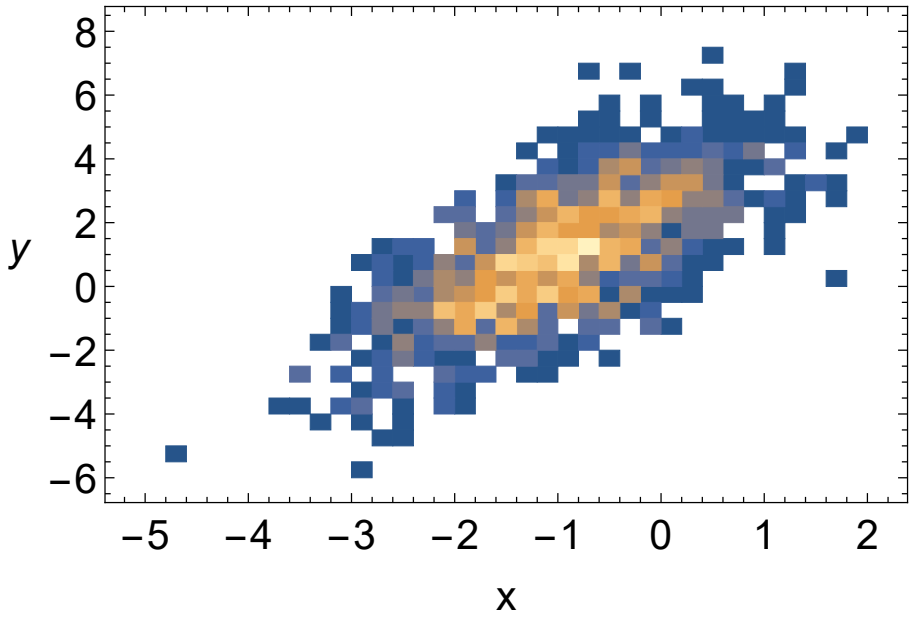


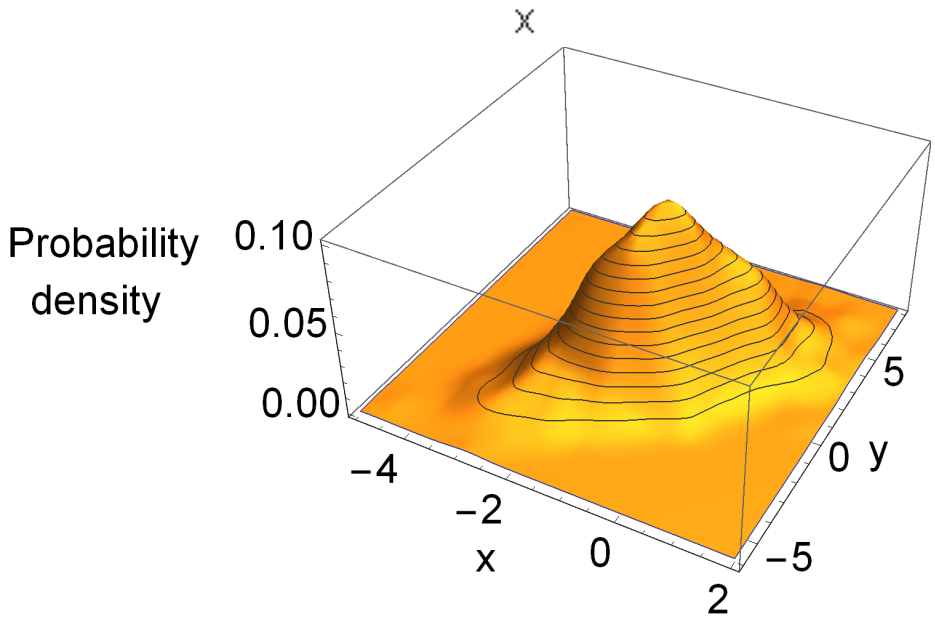


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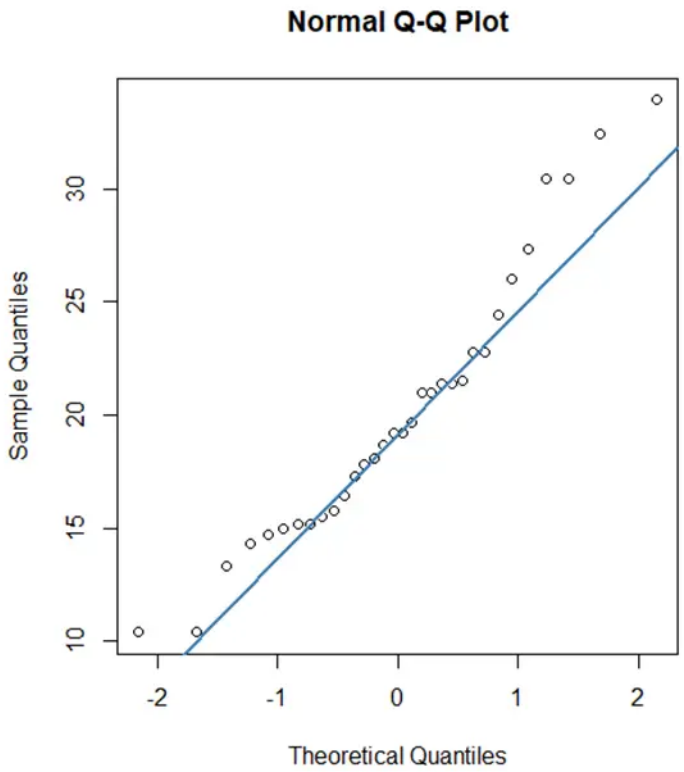




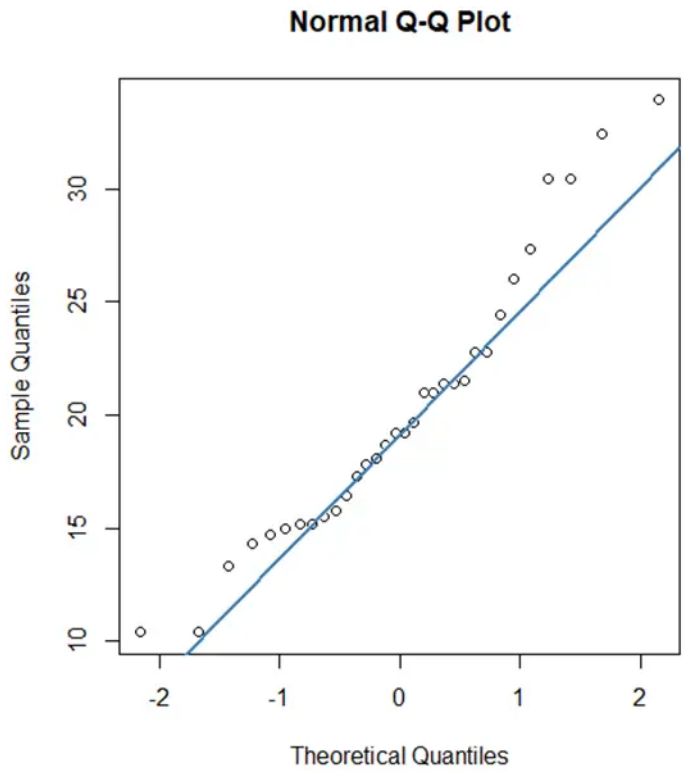


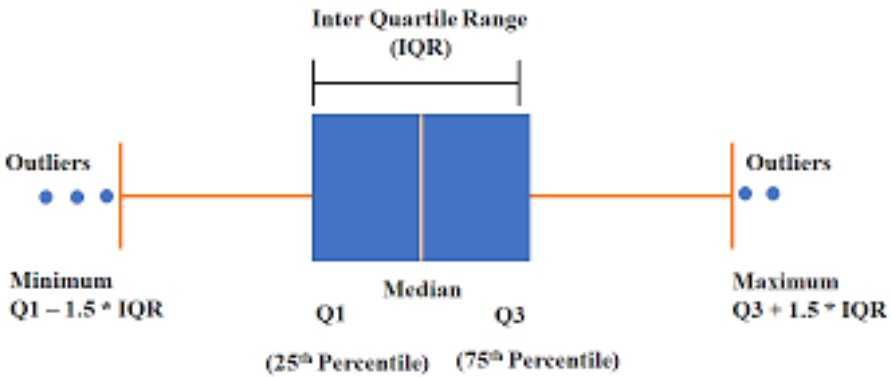


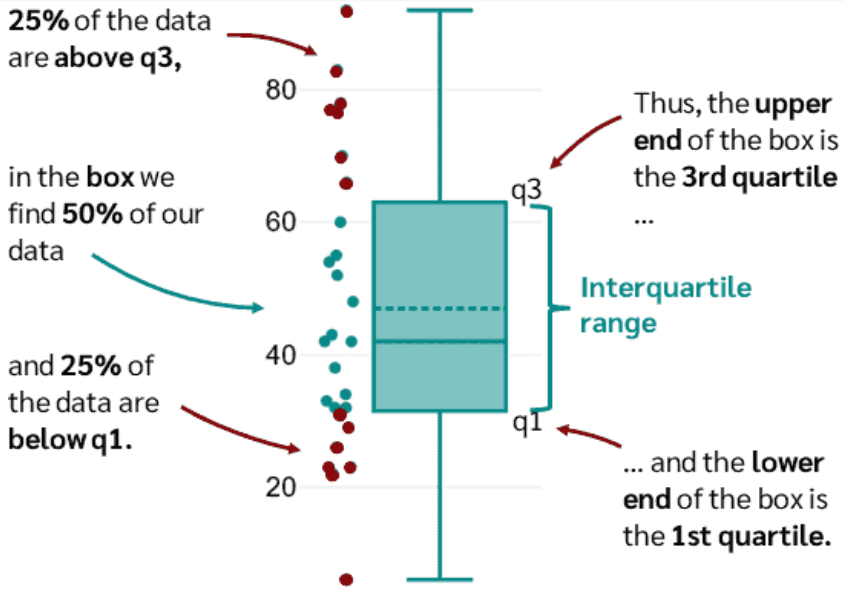
Różne wykresy statystyczne



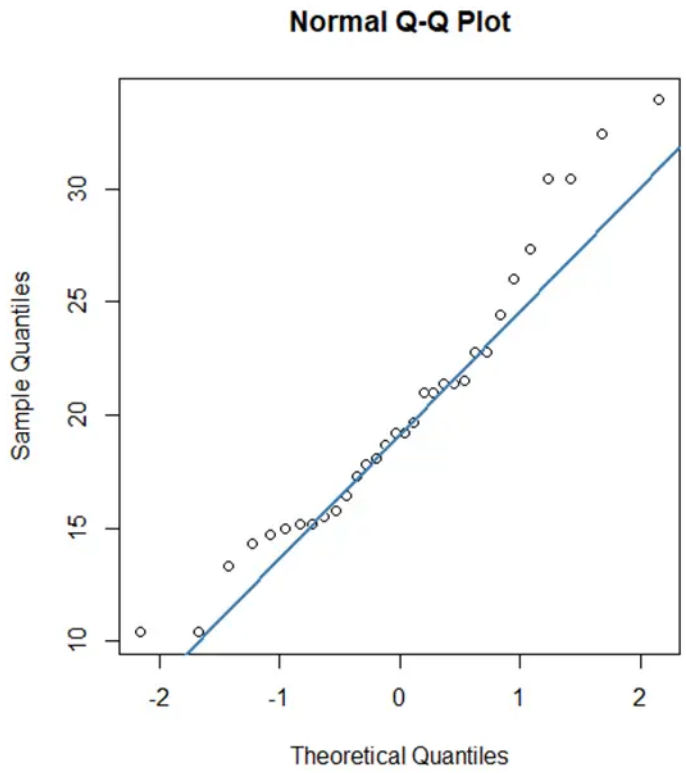
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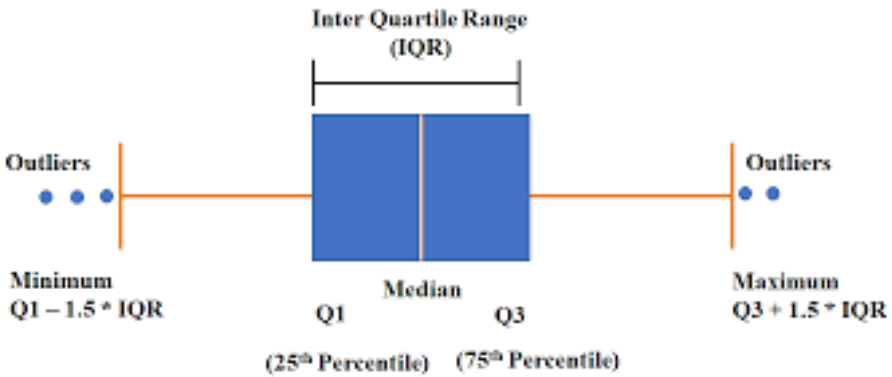


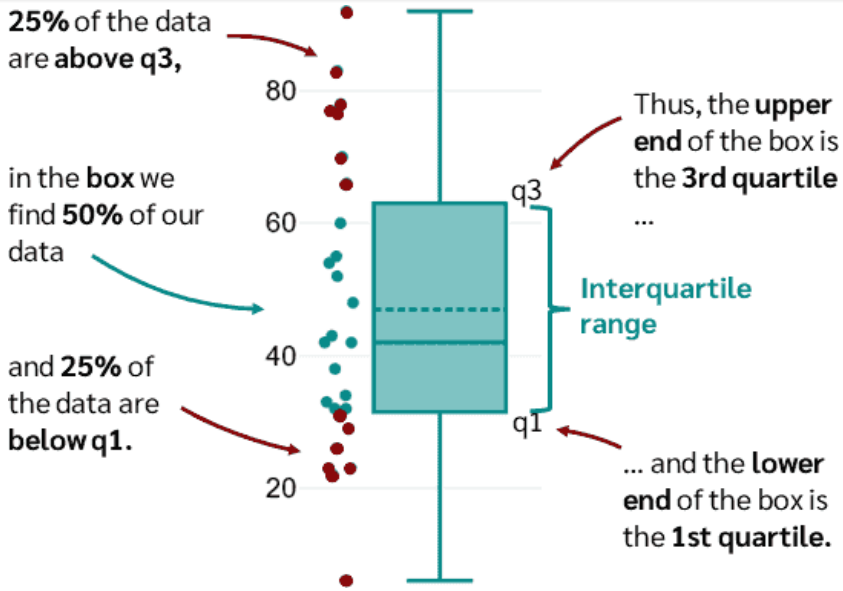


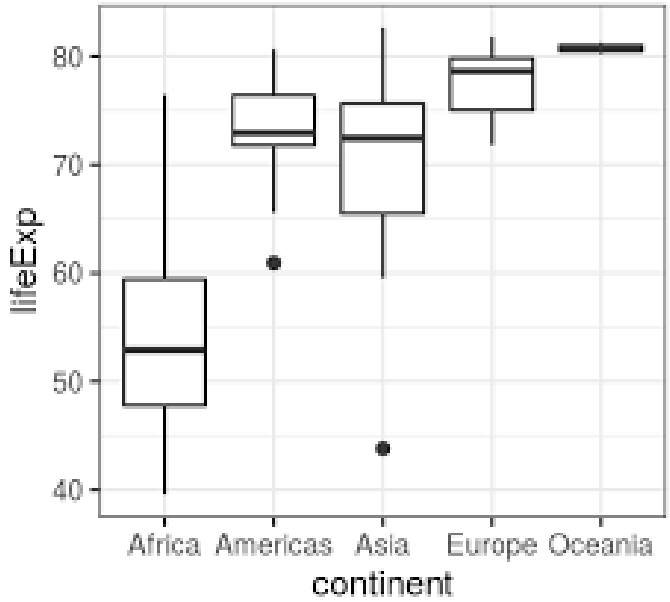


Różne wykresy statystyczne









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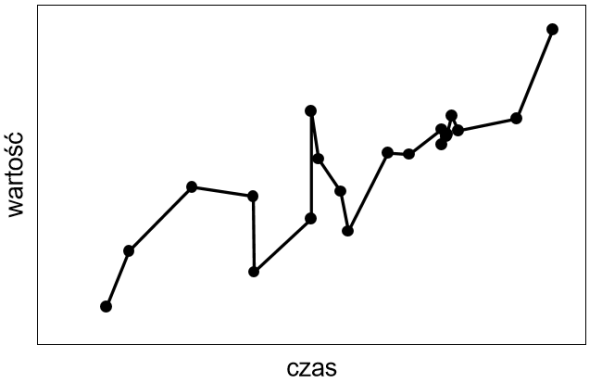


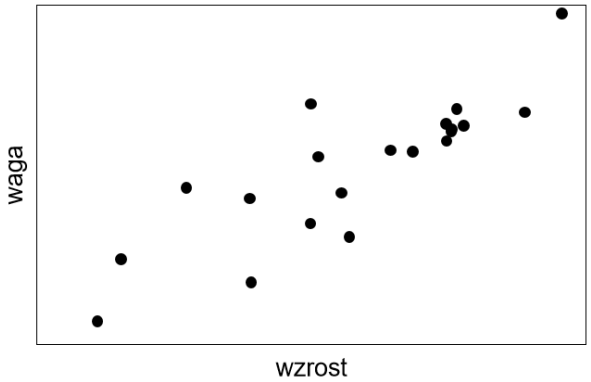
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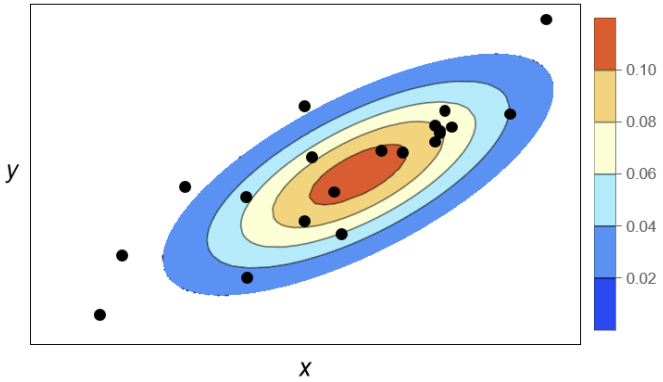
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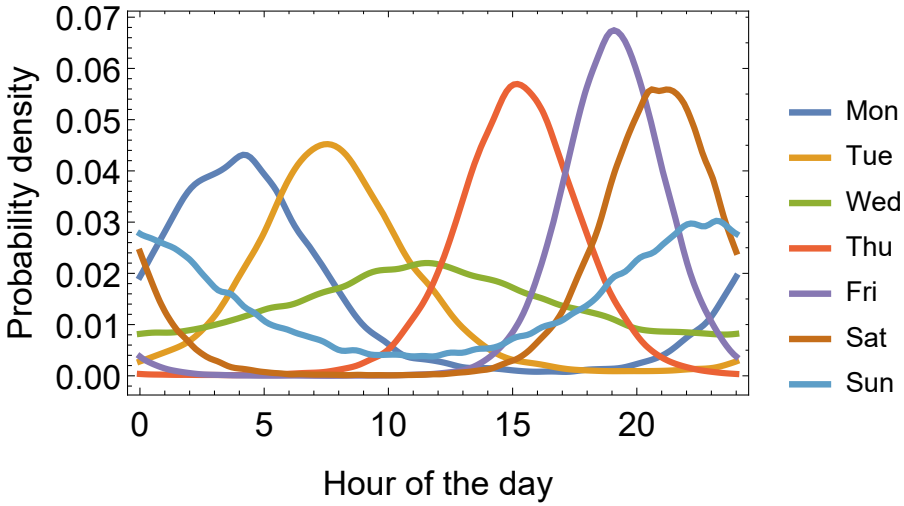
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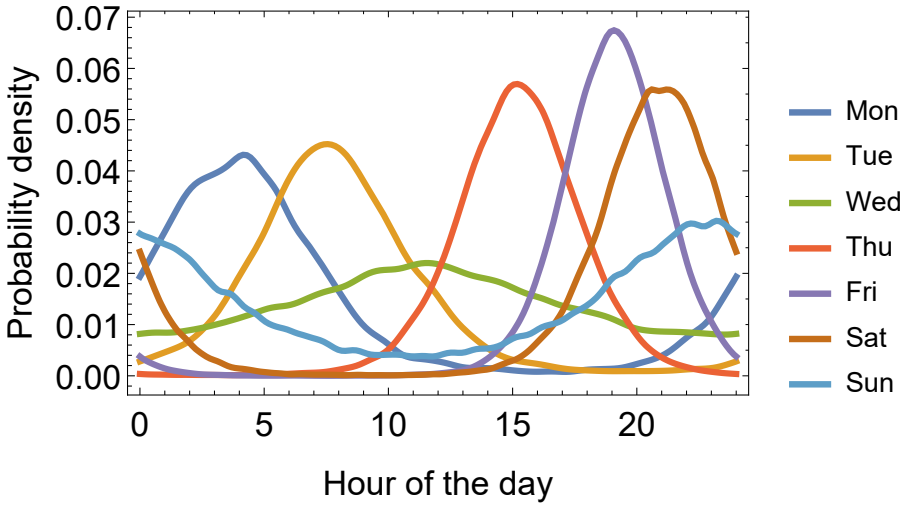


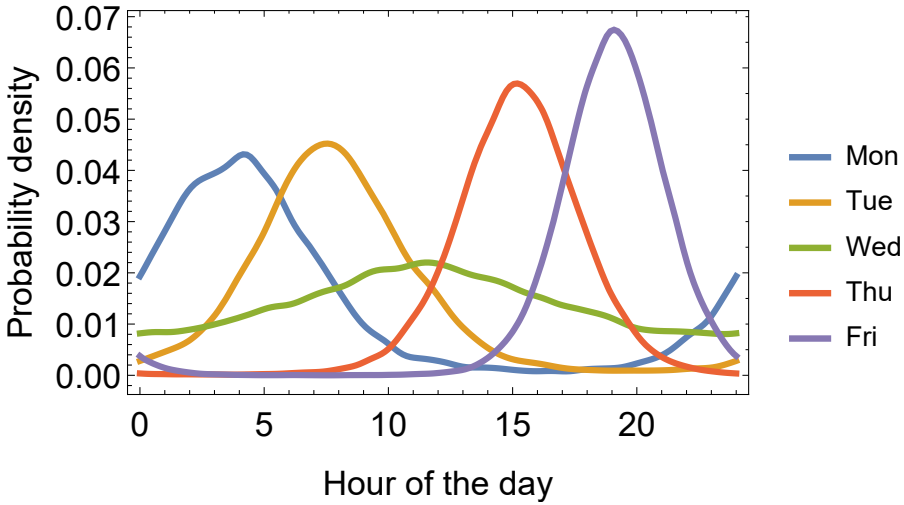


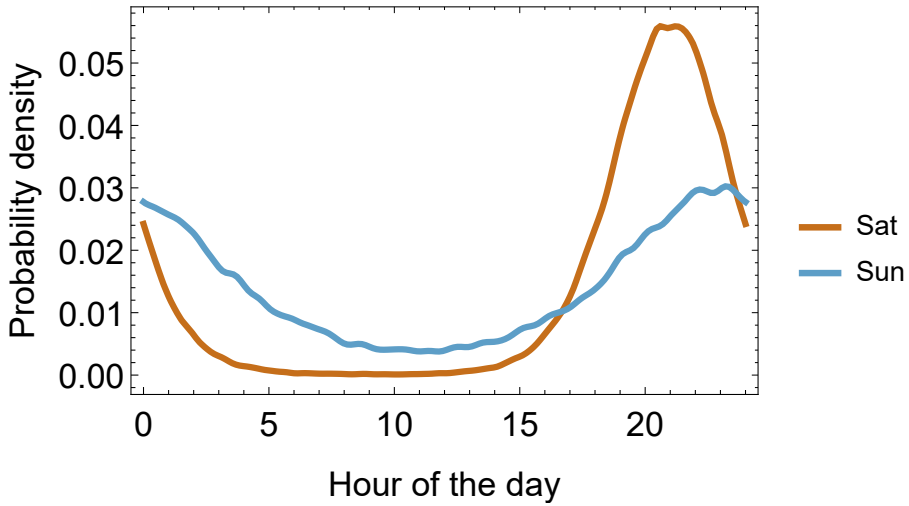
Sposób prezentacji dostosowany do natury danych



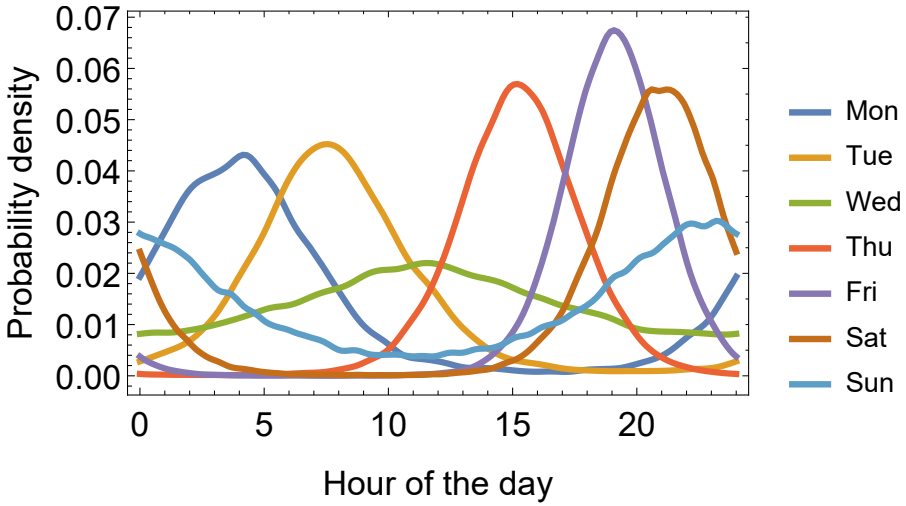
Sposób prezentacji dostosowany do natury danych

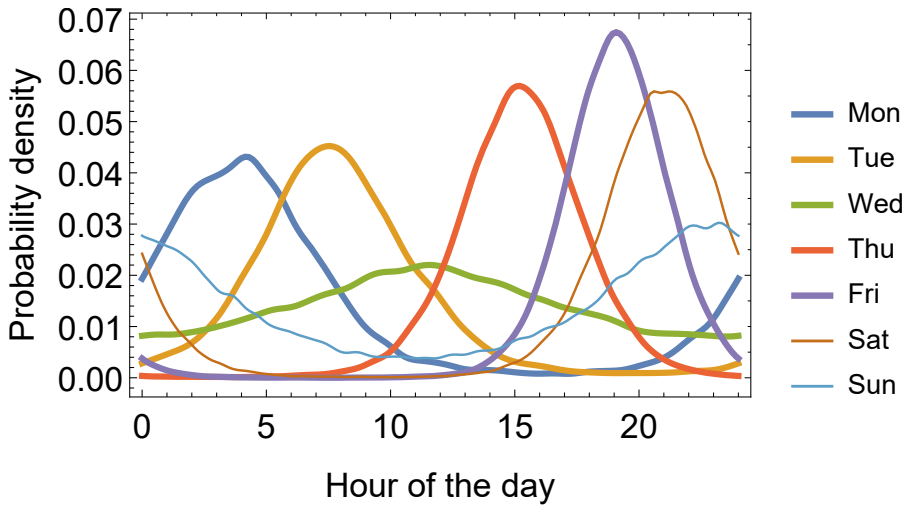


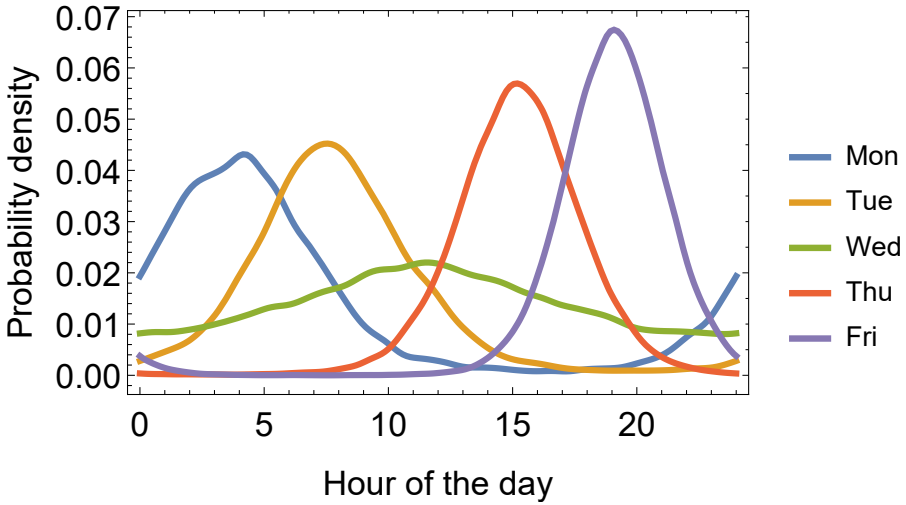


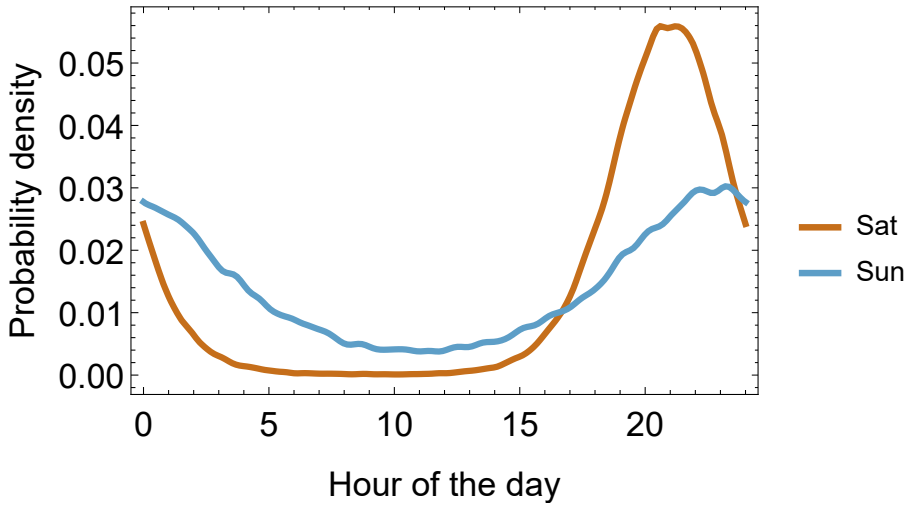


Sposób prezentacji dostosowany do natury danych

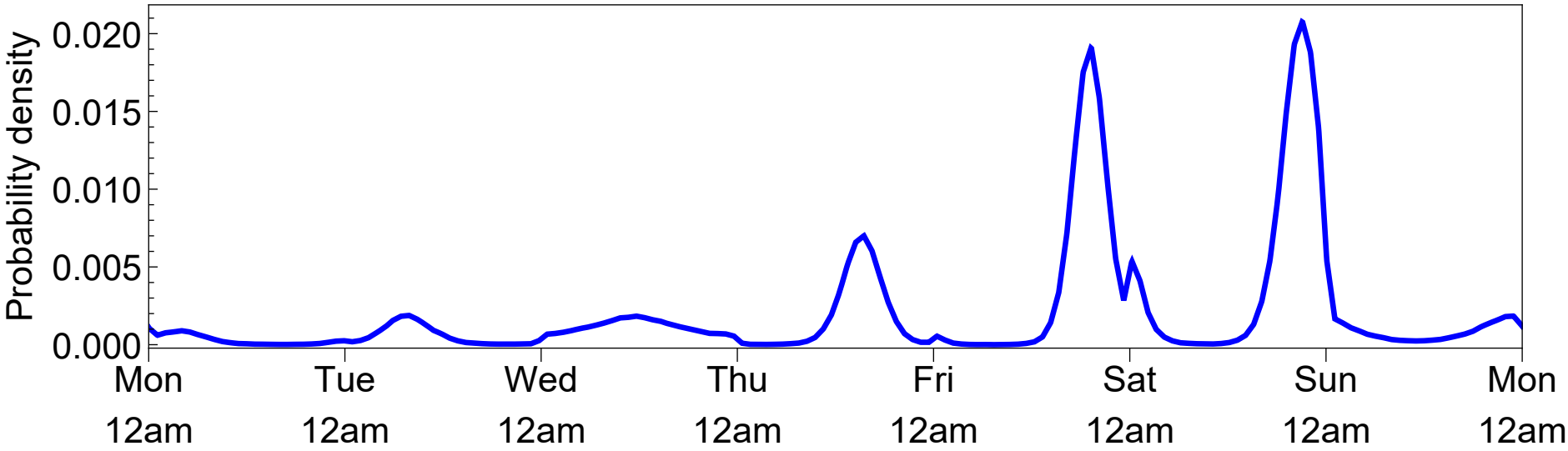




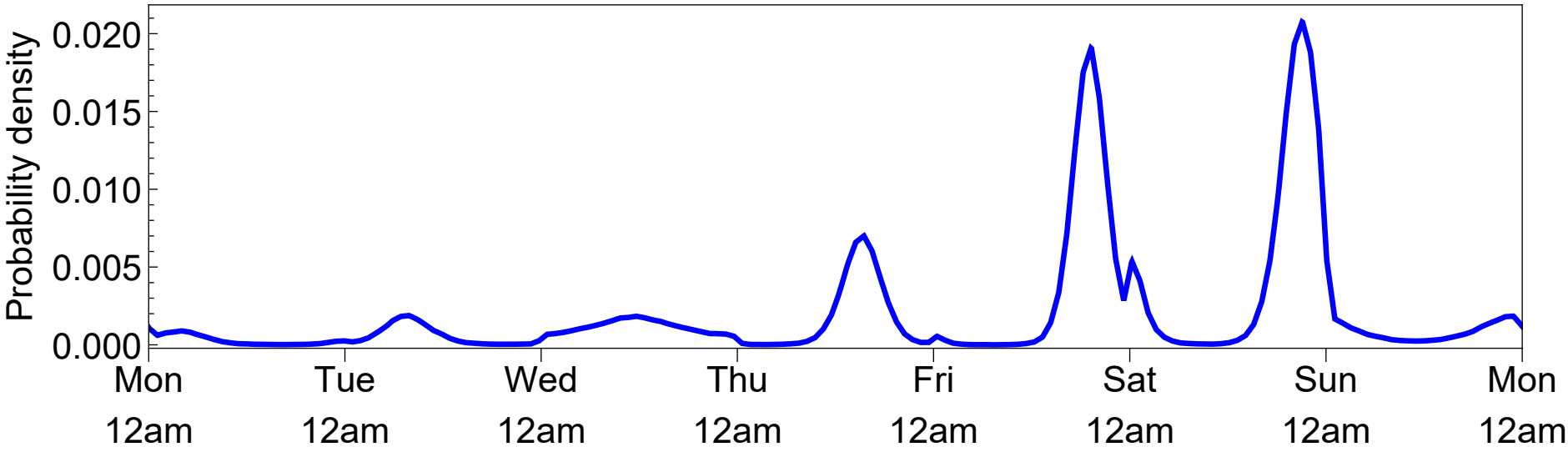


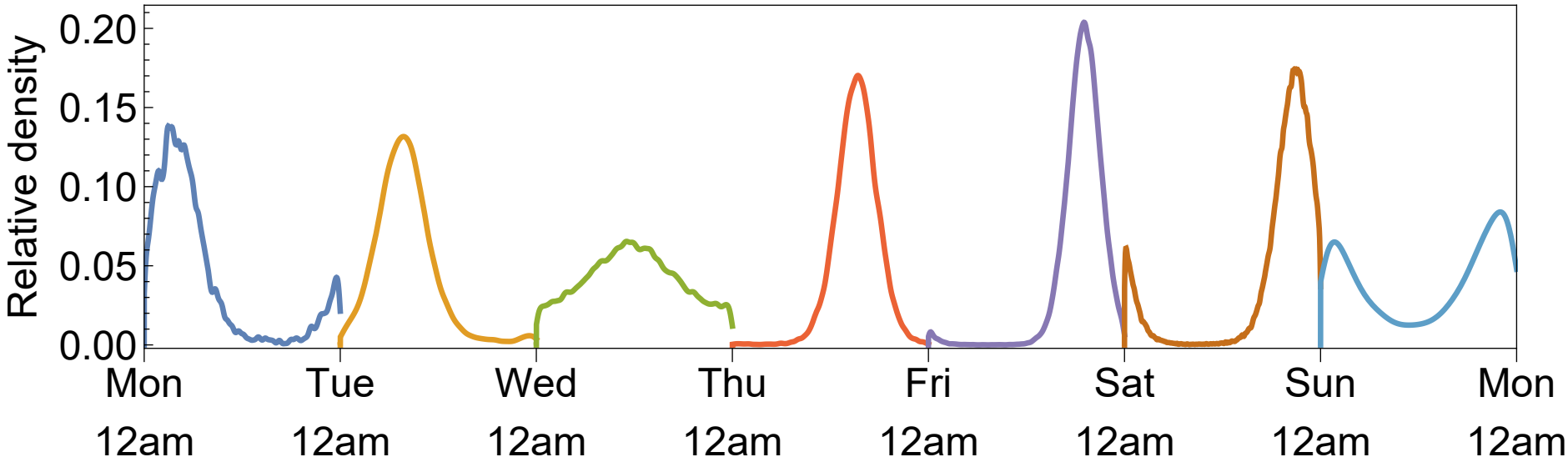


Sposób prezentacji dostosowany do natury danych

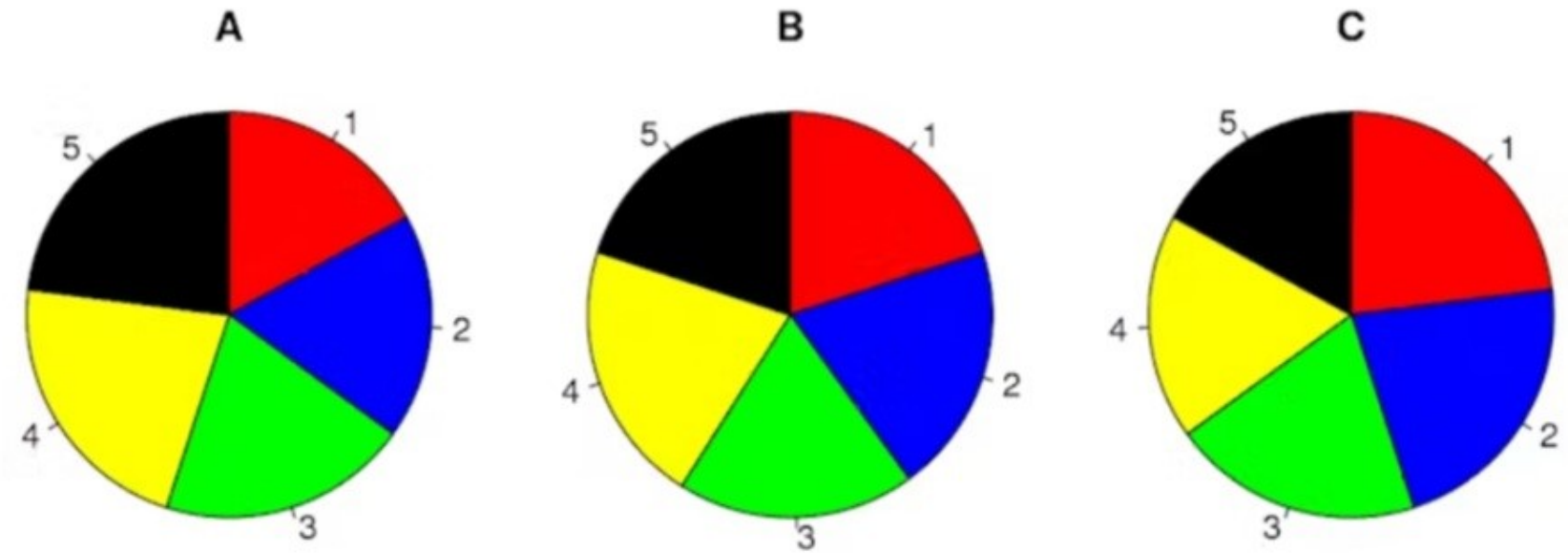


Sposób prezentacji dostosowany do natury danych

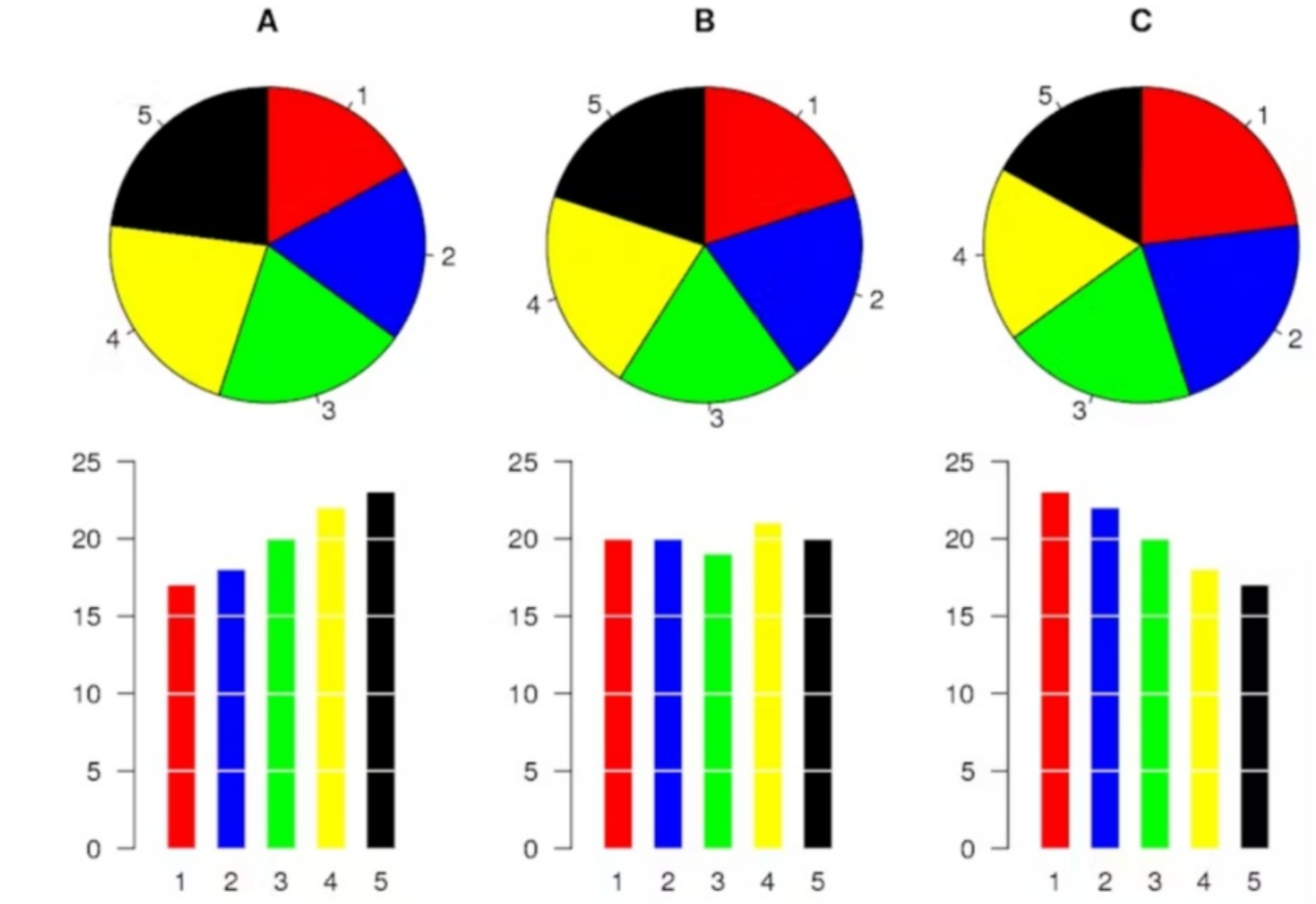




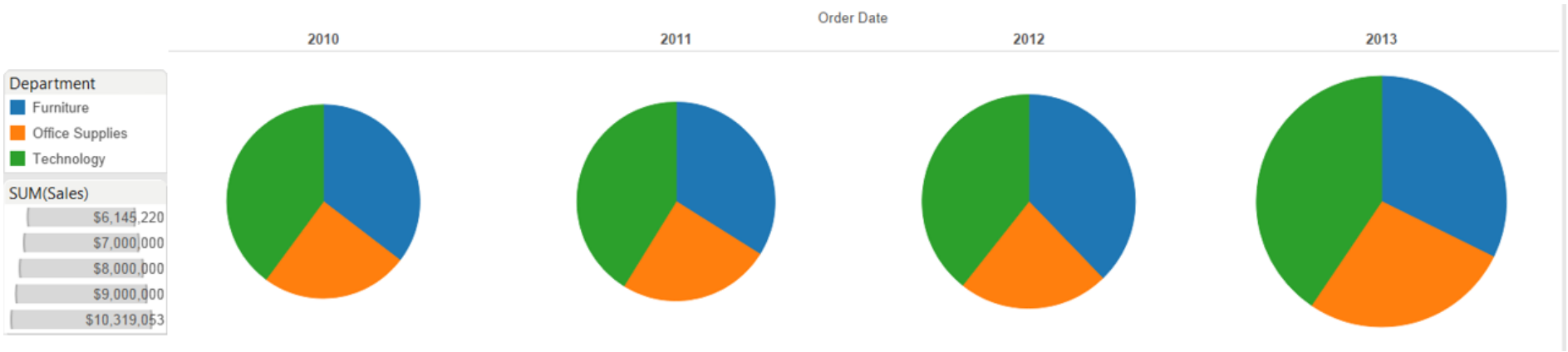
Wykres kołowy



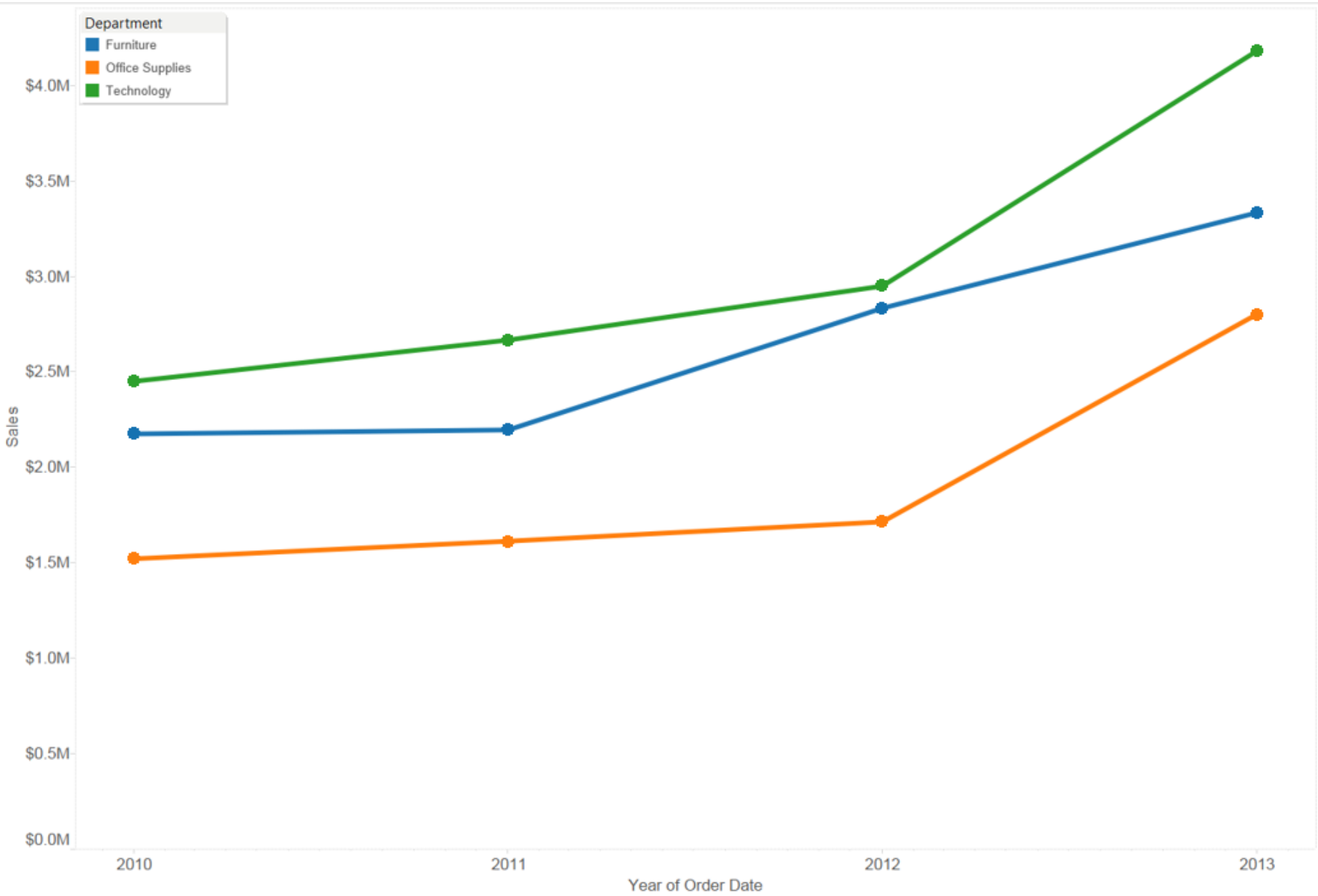
Wykres kołowy — nie używać X



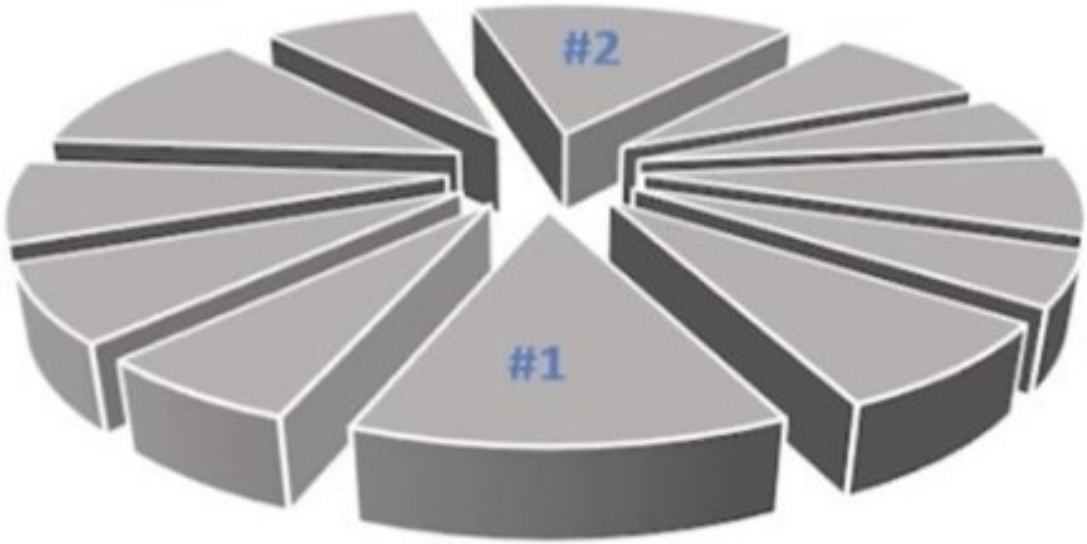
Wykres kołowy — nie używać X



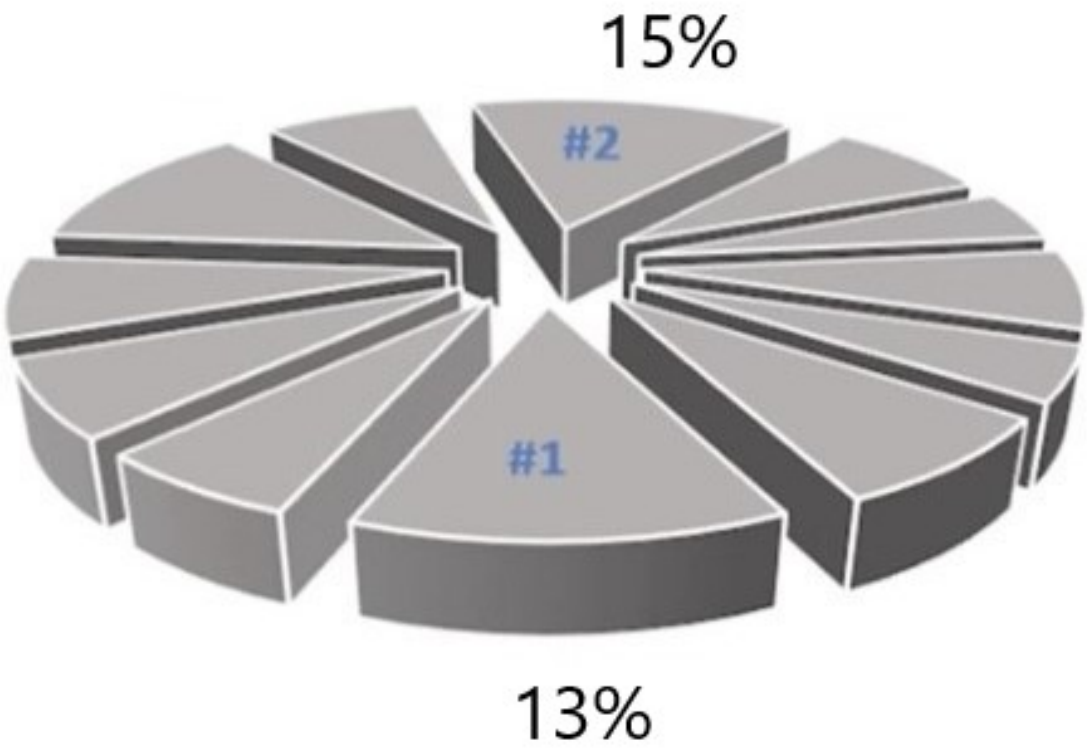
Wykres kołowy — nie używać X



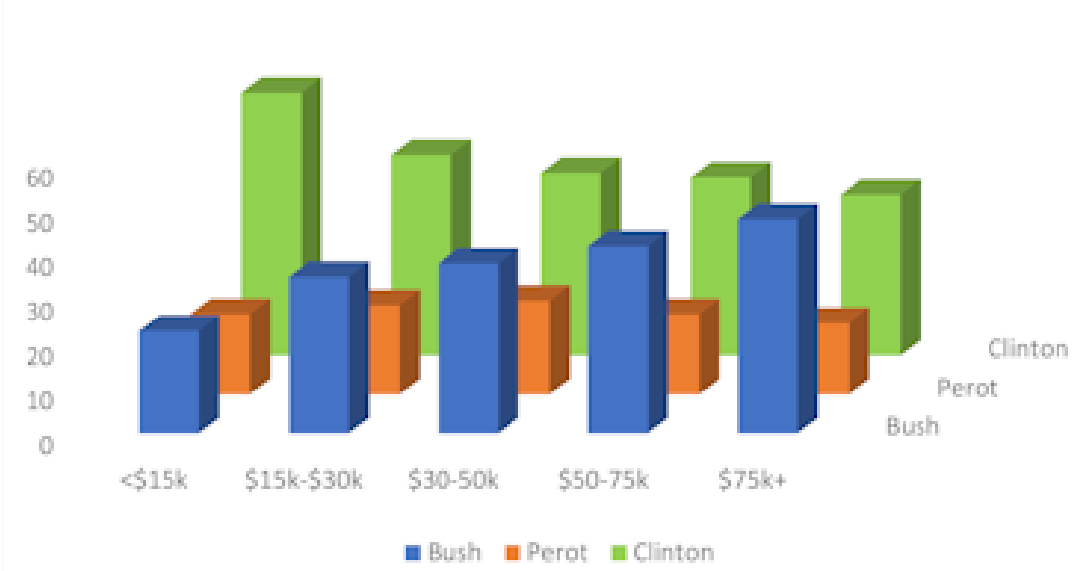
Wykres kołowy 3D - zwłaszcza nie używać XX

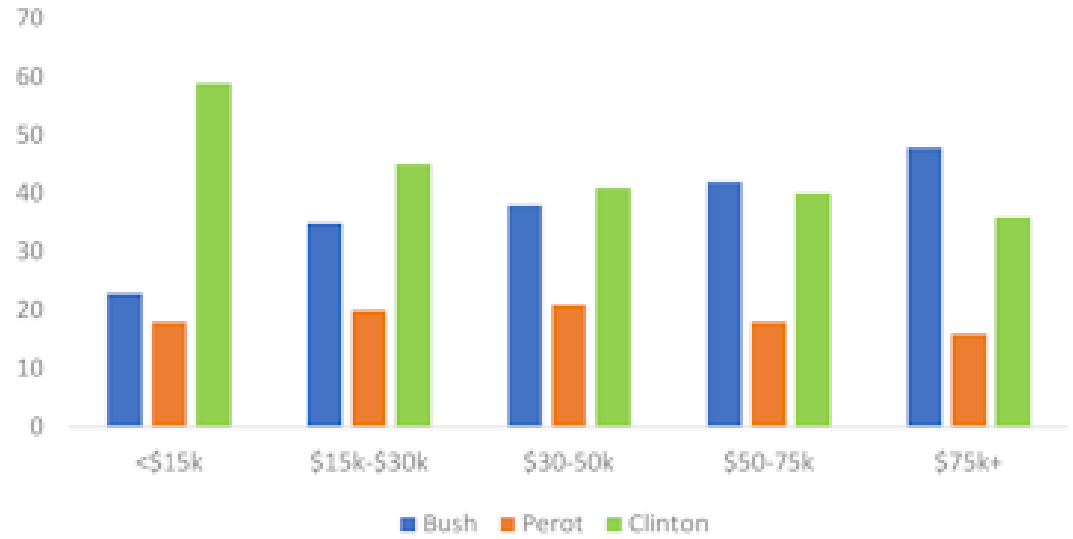


Wykres kołowy 3D - zwłaszcza nie używać *XX*

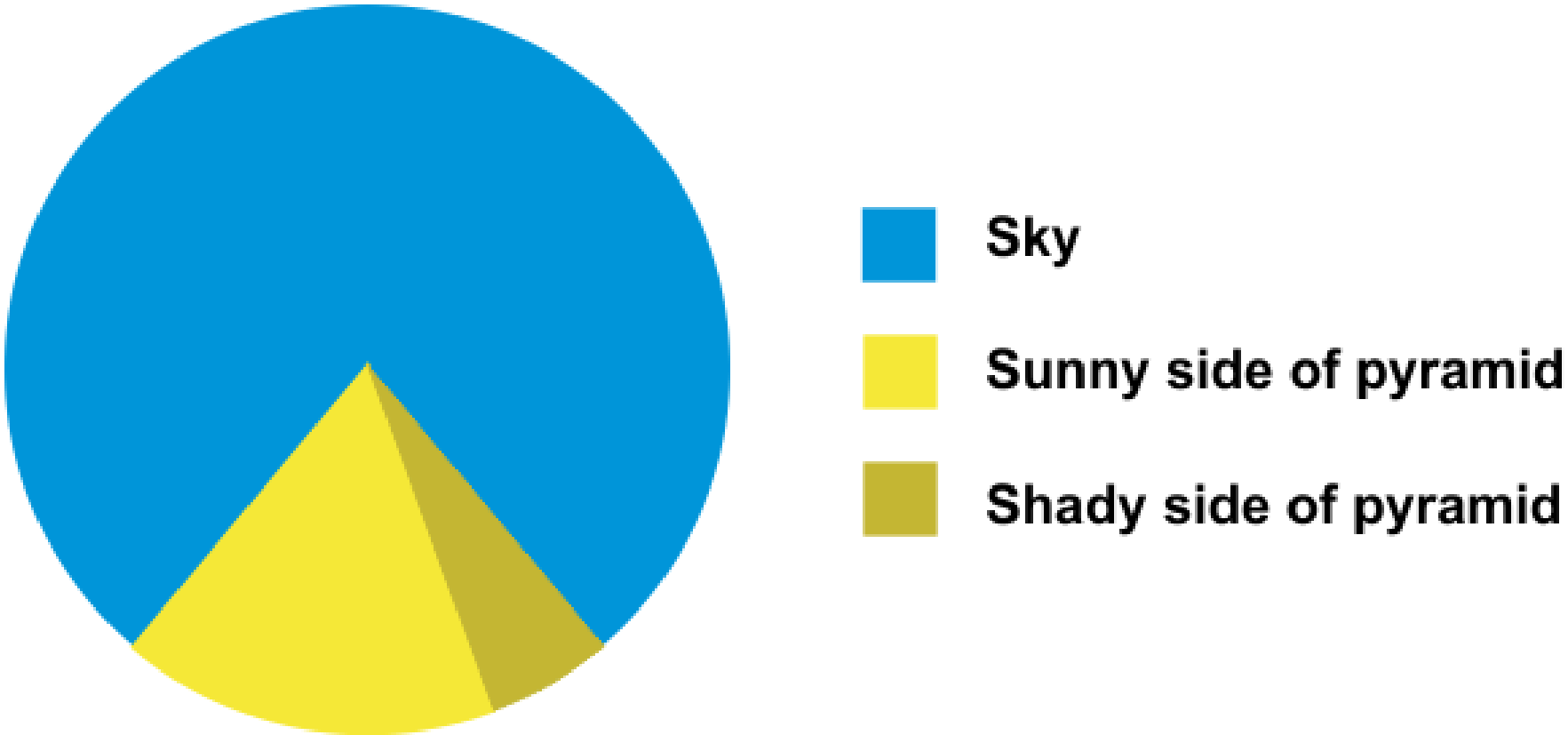


Bonus: wykres słupkowy 3D — też nie używać *XX*





Jedyne poprawne zastosowanie wykresu kołowego ✓



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