

Math 280: Graph Theory  
Instructor: David Zureick-Brown (“DZB”)  
GODY’s! (Graph Of The Day)

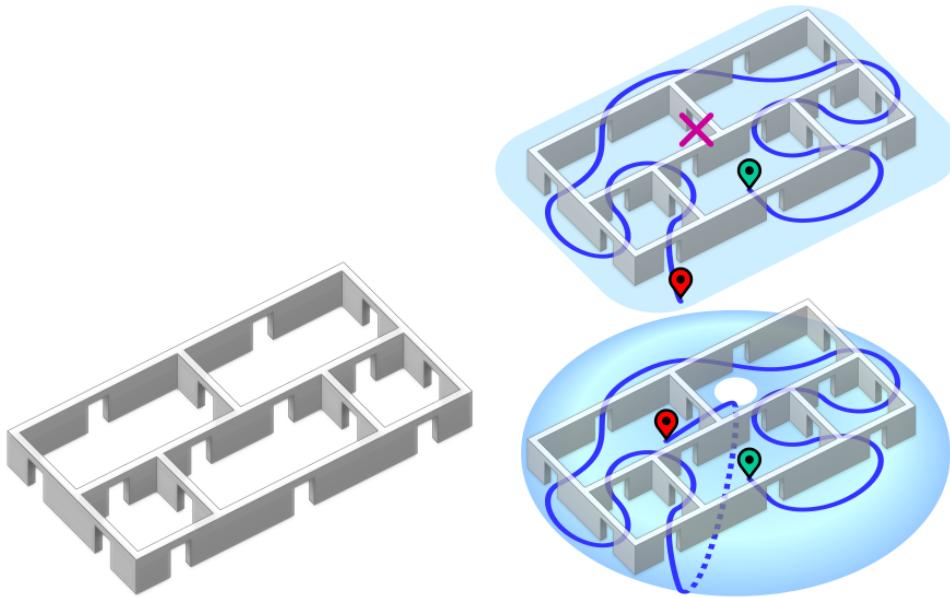
Last updated: September 23, 2024

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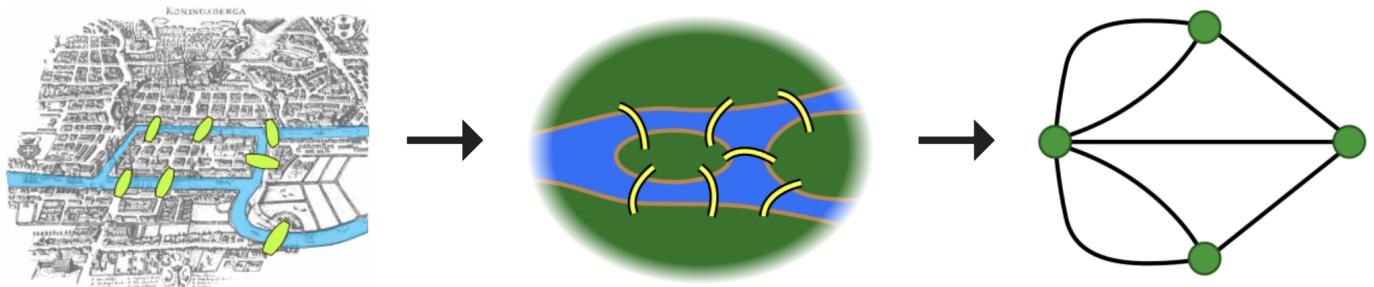
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# 1 Puzzle DZB couldn't solve in middle school

[https://en.wikipedia.org/wiki/Five-room\\_puzzle](https://en.wikipedia.org/wiki/Five-room_puzzle)



[https://www.archimedes-lab.org/How\\_to\\_Solve/5\\_rooms.html](https://www.archimedes-lab.org/How_to_Solve/5_rooms.html)

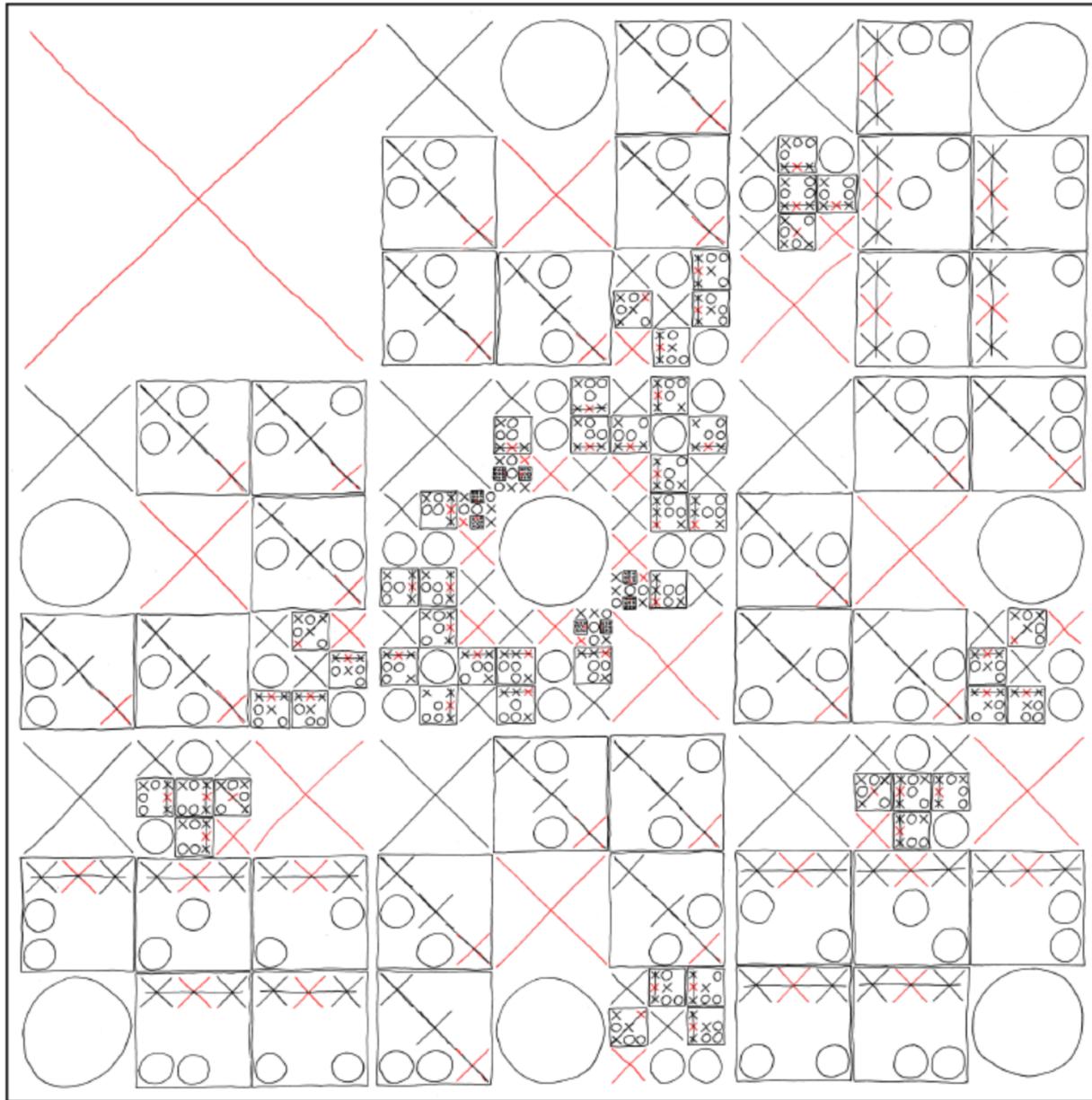


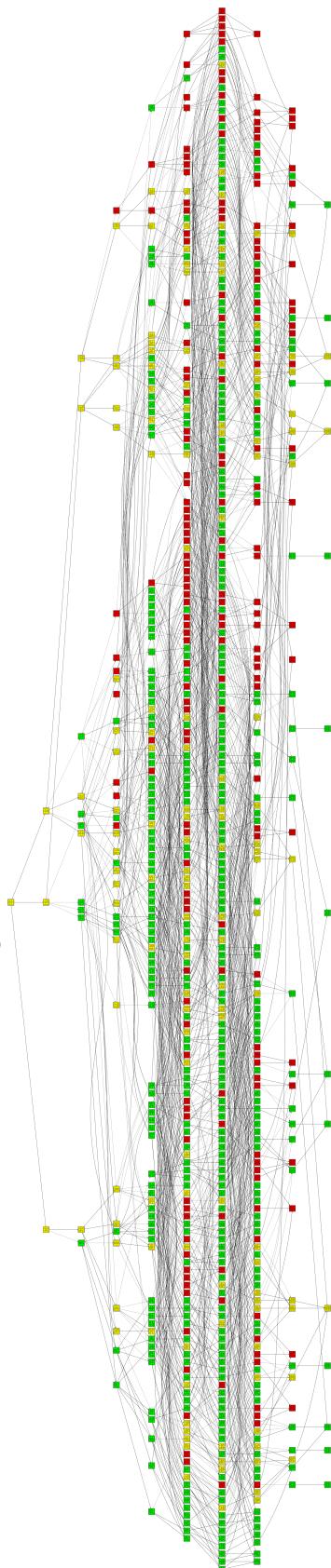
[https://en.wikipedia.org/wiki/Seven\\_Bridges\\_of\\_K%C3%B6nigsberg](https://en.wikipedia.org/wiki/Seven_Bridges_of_K%C3%B6nigsberg)



## 2 Games

<https://xkcd.com/832/>

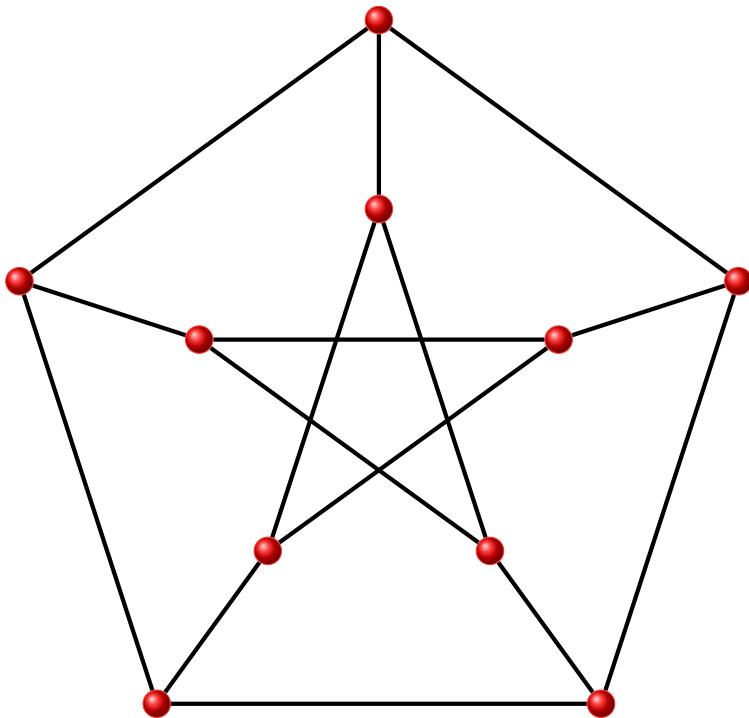




<https://gfredericks.com/blog/76>

### 3 Petersen graph

“The Petersen graph is undoubtably the most important graph in graph theory. It’s going to be my next tattoo, in fact.” - [Bill Kay](#), Pacific Northwest National Laboratory

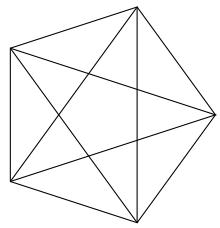


[https://en.wikipedia.org/wiki/Petersen\\_graph](https://en.wikipedia.org/wiki/Petersen_graph)

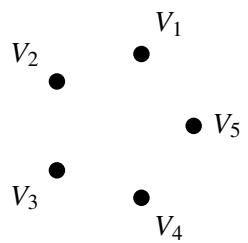


## 4 Common graphs.

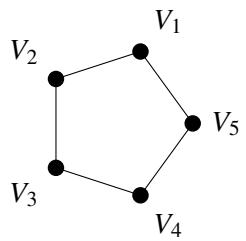
$K_n$  complete graph.



$E_n$  empty graph.



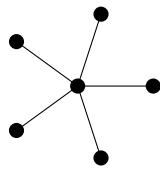
$C_n$  cycle graph.



$P_n$  path graph.



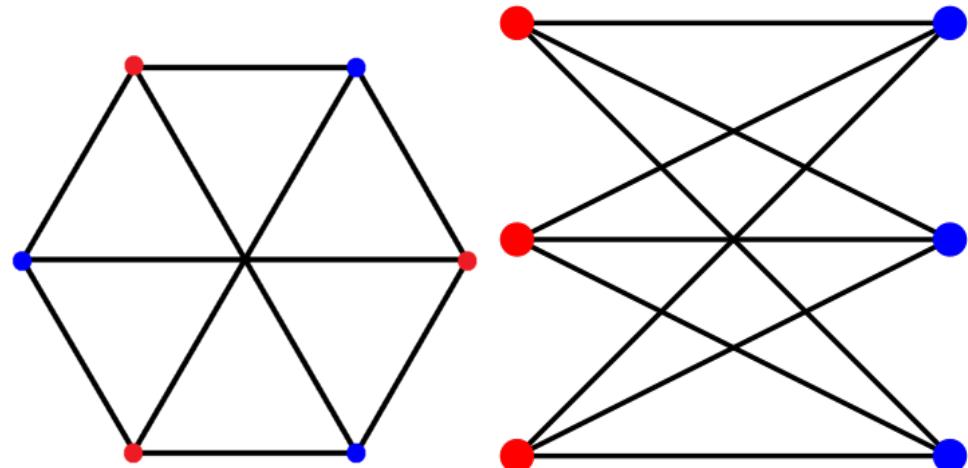
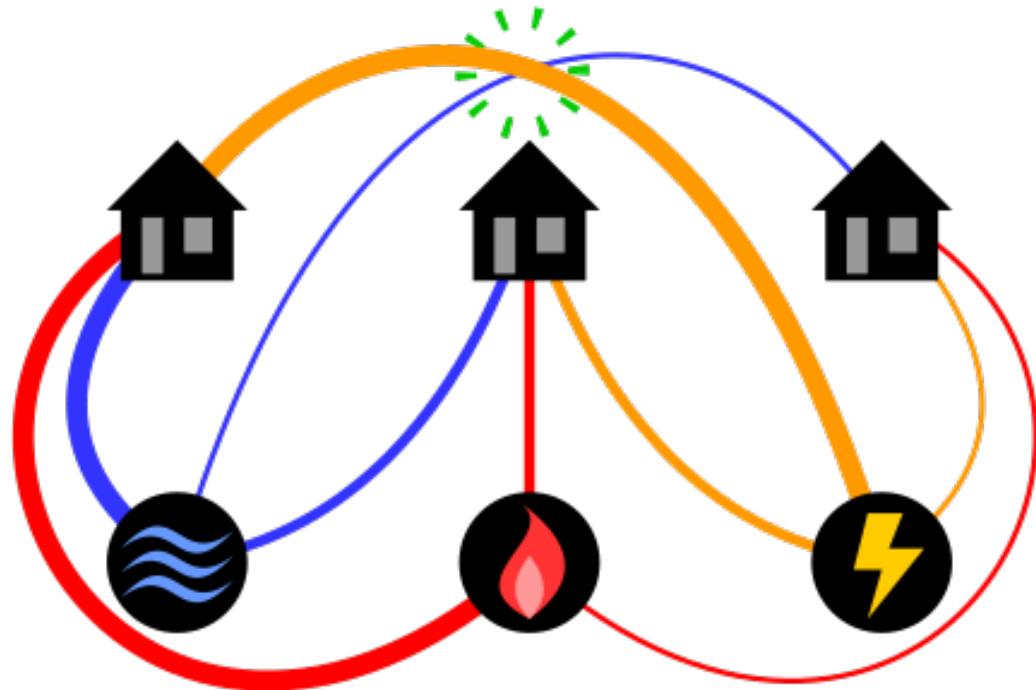
$S_n$  star graph.





## 5 Three utilities problem

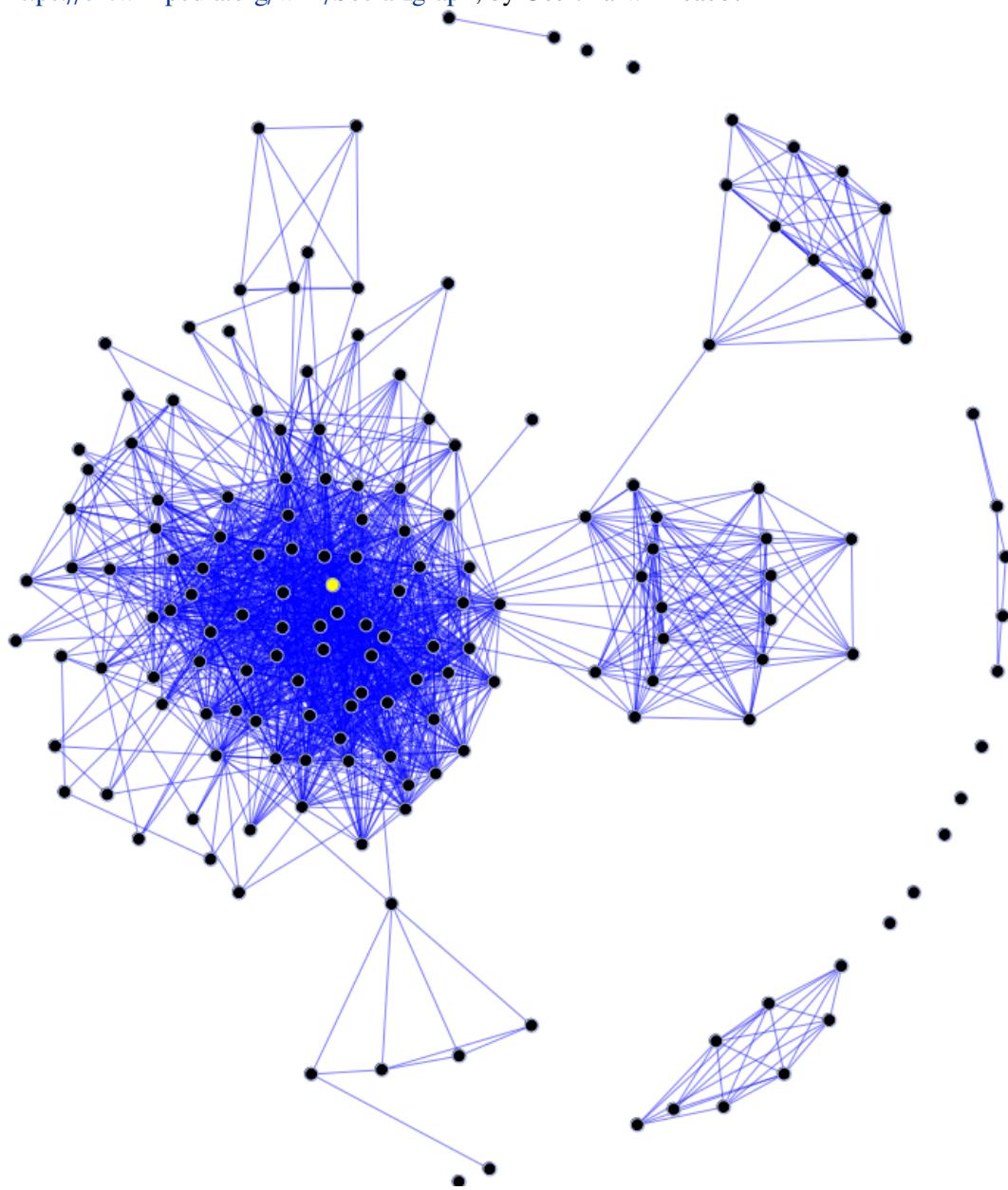
[https://en.wikipedia.org/wiki/Three\\_utilities\\_problem](https://en.wikipedia.org/wiki/Three_utilities_problem)





## 6 Social network graphs

[https://en.wikipedia.org/wiki/Social\\_graph](https://en.wikipedia.org/wiki/Social_graph), by User:DarwinPeacock

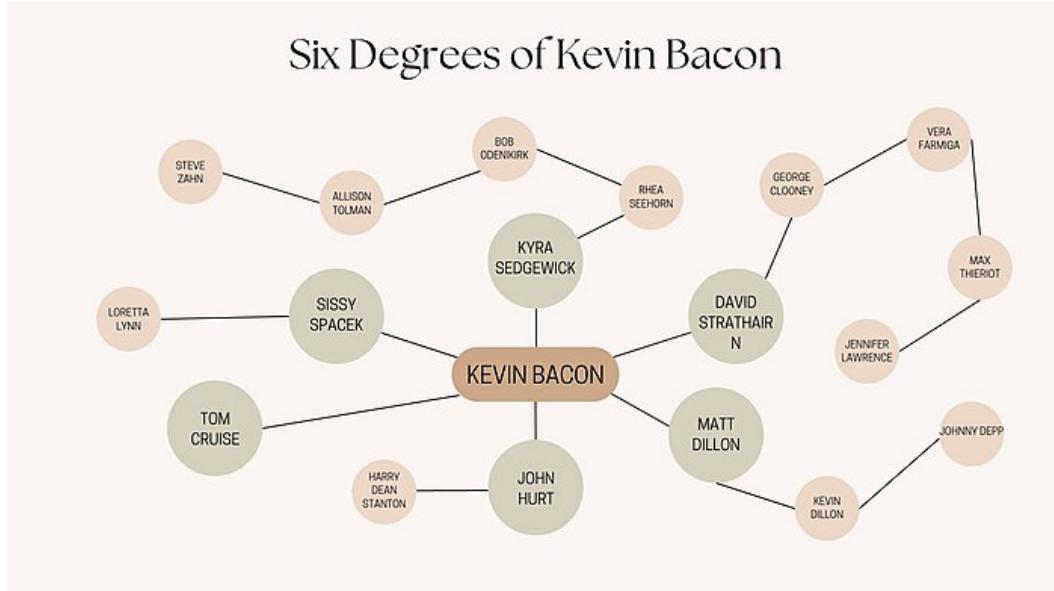




Facebook reports that the graph has diameter 41

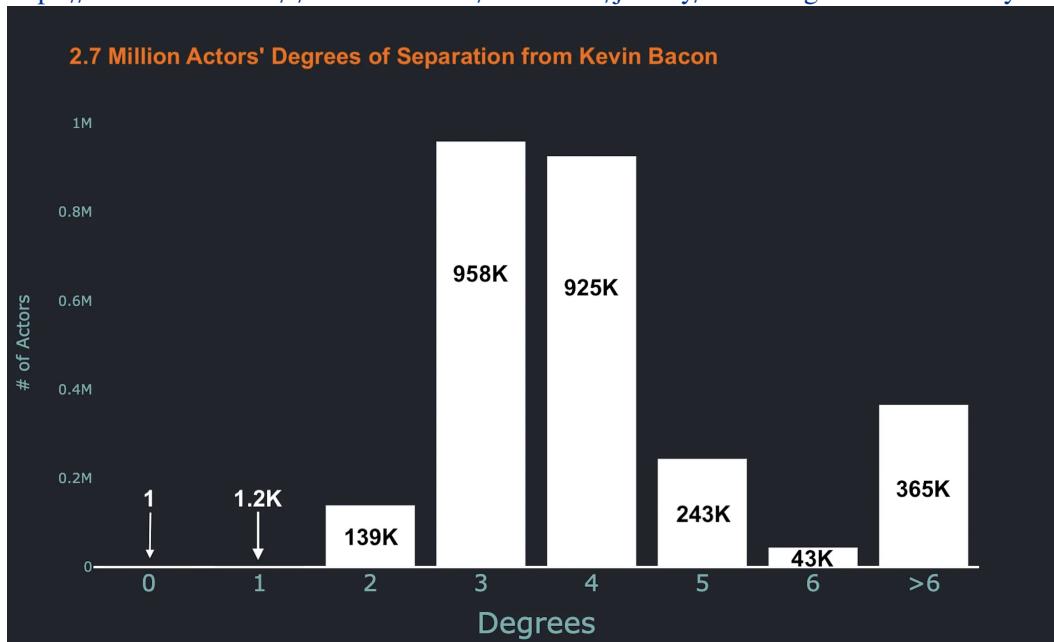
<https://pages.di.unipi.it/marino/diameter.pdf>

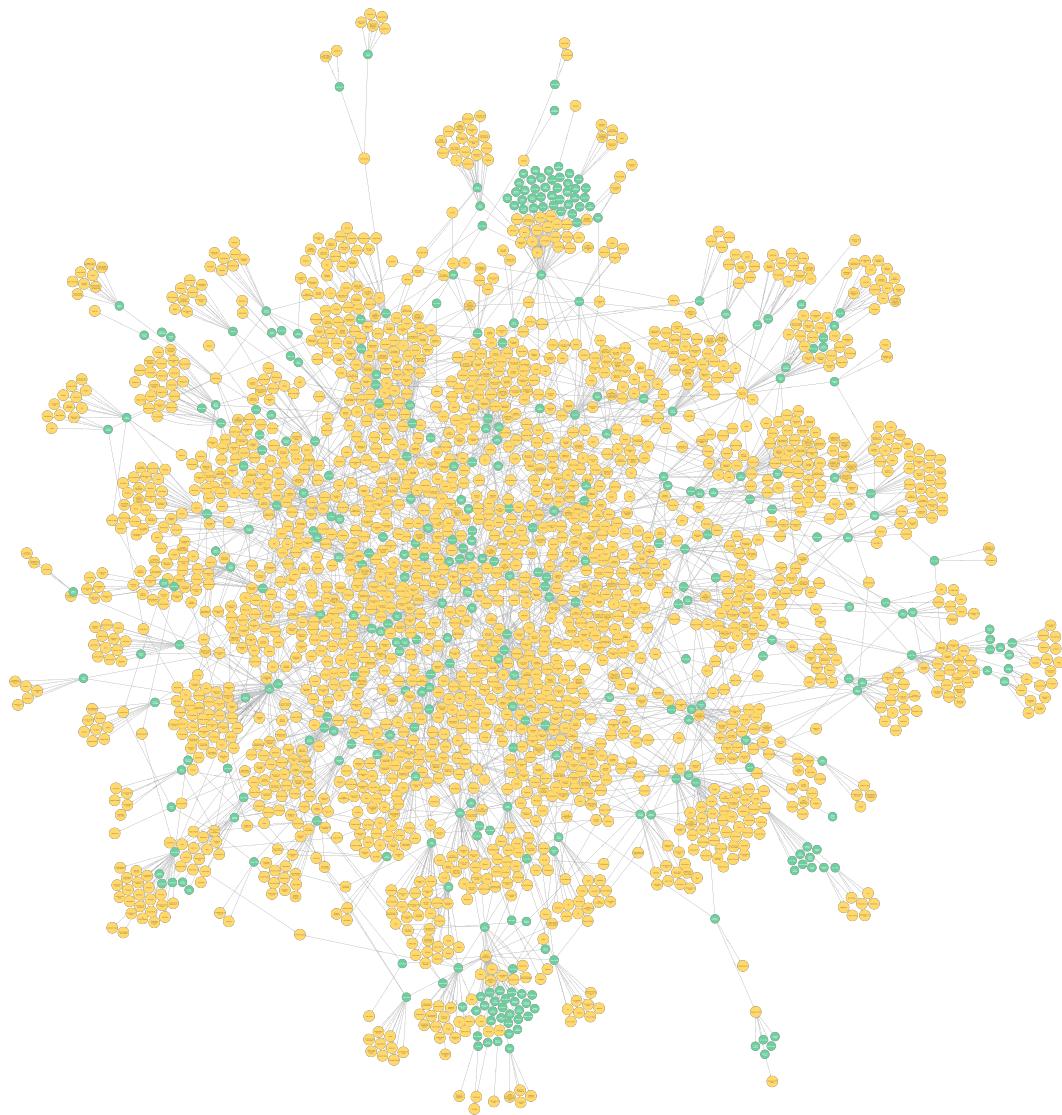
[https://en.wikipedia.org/wiki/Six\\_Degrees\\_of\\_Kevin\\_Bacon](https://en.wikipedia.org/wiki/Six_Degrees_of_Kevin_Bacon)



<https://oracleofbacon.org/graph.php>

[https://www.reddit.com/r/dataisbeautiful/comments/j6houy/collecting\\_data\\_from\\_every\\_movie\\_on\\_imdb\\_to/](https://www.reddit.com/r/dataisbeautiful/comments/j6houy/collecting_data_from_every_movie_on_imdb_to/)

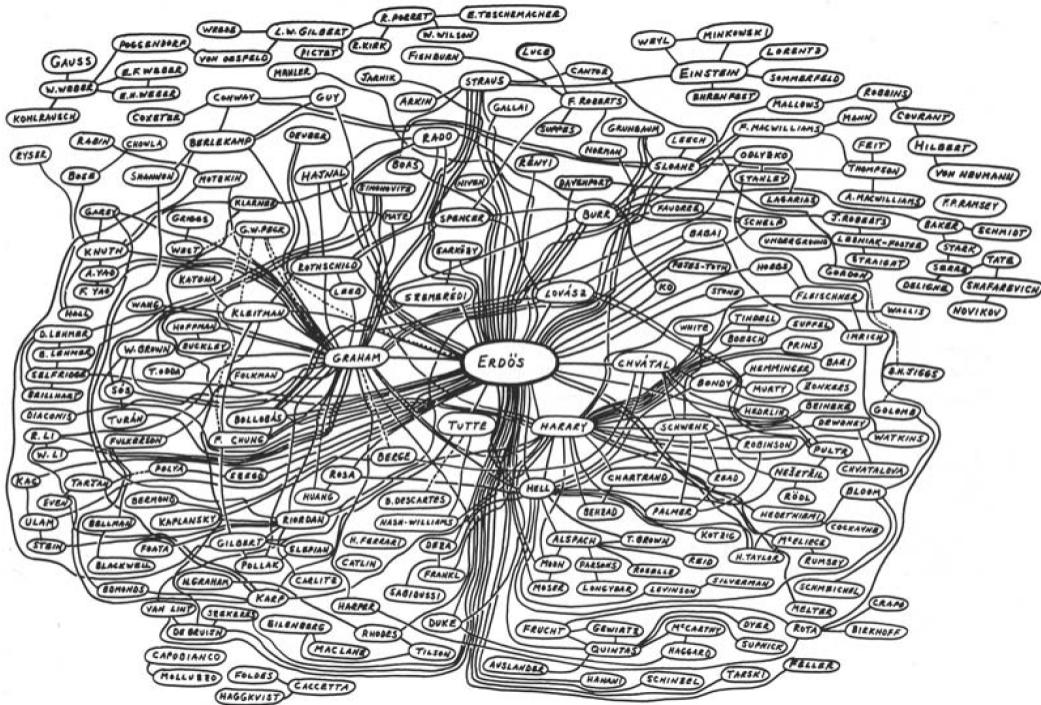


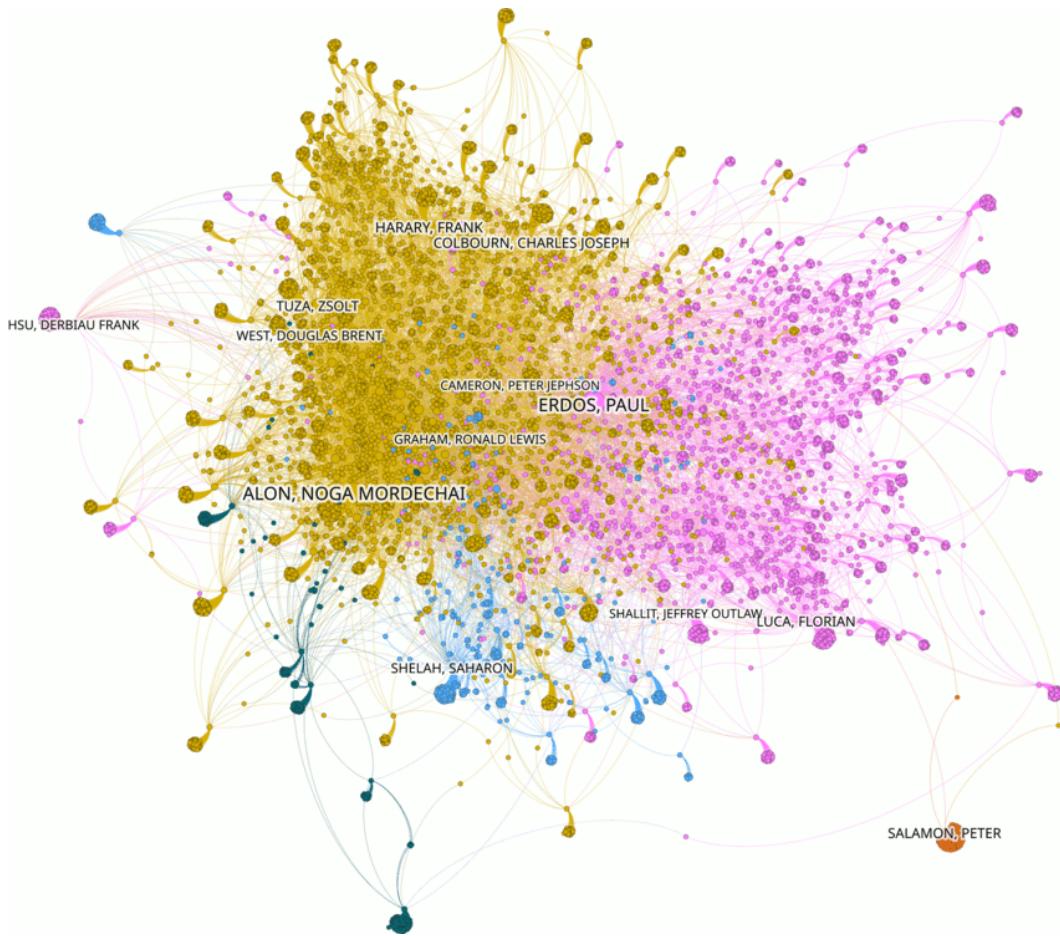


[https://www.flerlagetwins.com/2017/04/six-degrees-of-kevin-bacon-with-graph\\_37.html](https://www.flerlagetwins.com/2017/04/six-degrees-of-kevin-bacon-with-graph_37.html)

[https://en.wikipedia.org/wiki/Erd%C5%91s\\_number](https://en.wikipedia.org/wiki/Erd%C5%91s_number)

<https://mathscinet.ams.org/mathscinet/freetools/collab-dist?source=964616&target=189017>





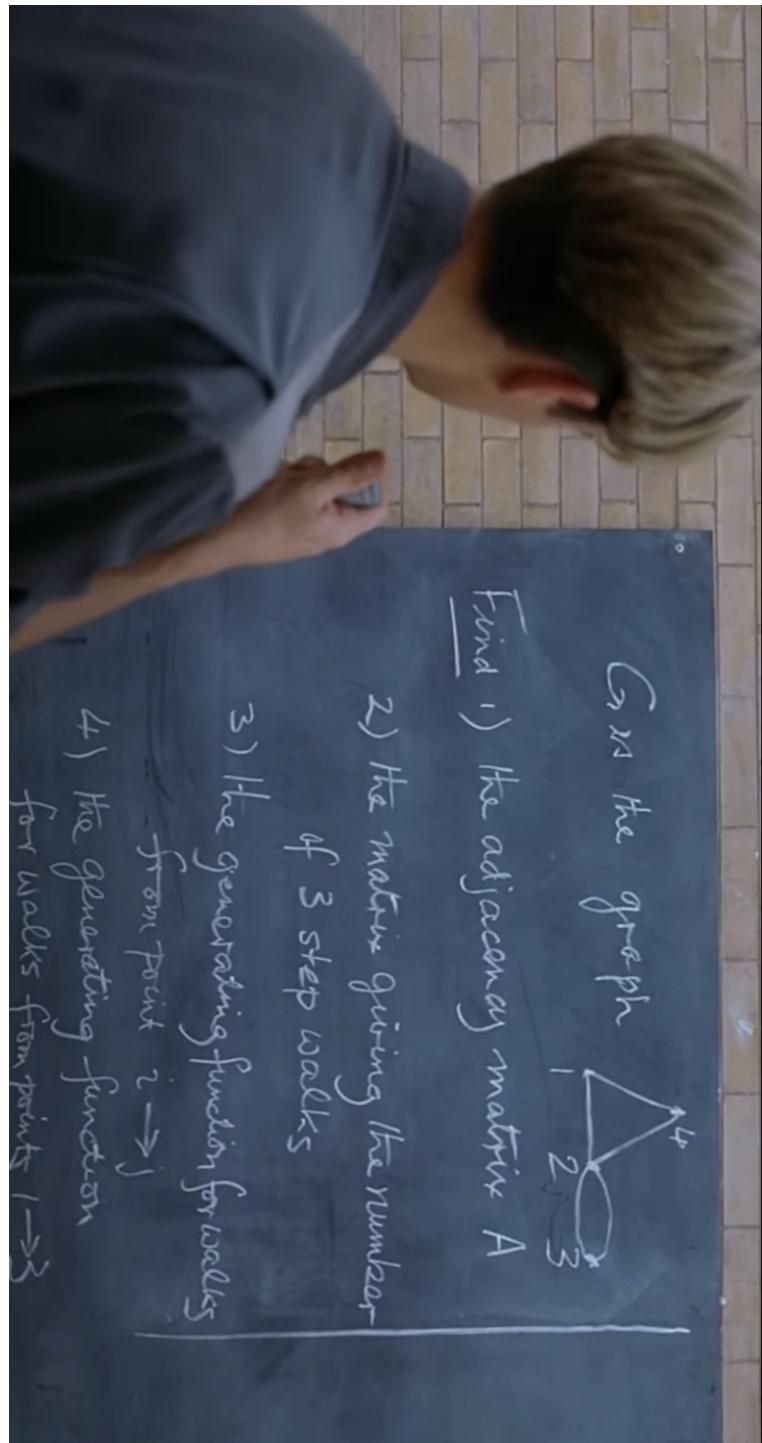
[https://www.researchgate.net/figure/Co-authorship-network-of-mathematicians-with-an-Erdos-number-of-at-most\\_fig1\\_352562021](https://www.researchgate.net/figure/Co-authorship-network-of-mathematicians-with-an-Erdos-number-of-at-most_fig1_352562021)



## 7 Goodwill Hunting

[https://people.math.harvard.edu/archive/21b.fall\\_03/goodwill/](https://people.math.harvard.edu/archive/21b.fall_03/goodwill/)

[https://www.youtube.com/watch?v=iW\\_LkYiuTKE&ab\\_channel=Numberphile](https://www.youtube.com/watch?v=iW_LkYiuTKE&ab_channel=Numberphile)





## 8 Family tree. Math Geneology. Decision tree. Brackets.

Math Bracket.

Serre has a book, trees.