



Graphs in Machine Learning

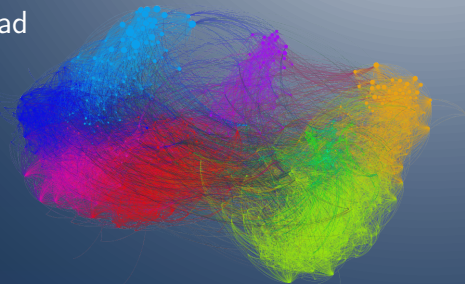
Small-World Phenomena

Erdős Numbers and Disease Spread

Michal Valko

Inria & ENS Paris-Saclay, MVA

Partially based on material by: Andreas Krause,
Branislav Kveton, Michael Kearns



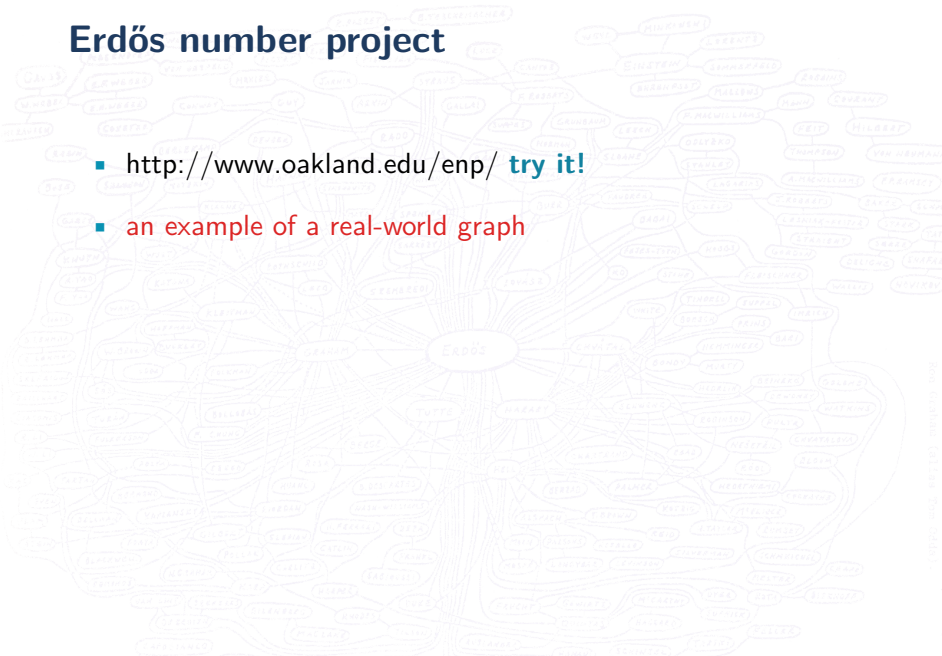
Erdős number project

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- an example of a real-world graph



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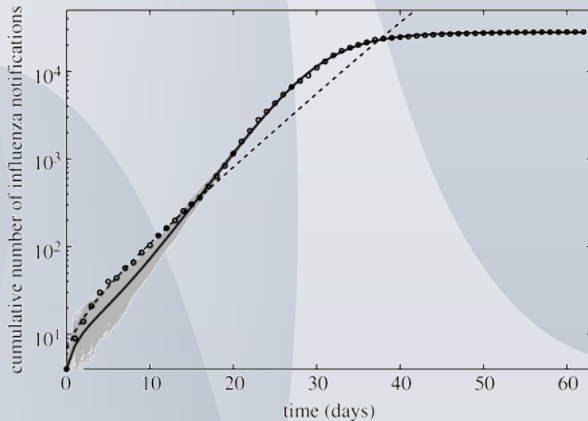
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- **heavy tail**

Spanish flu in San Francisco 1918–1919

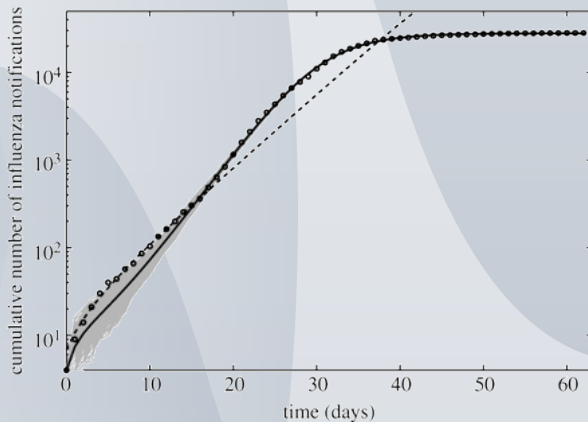
Small-world phenomenon and diseases



<http://rsif.royalsocietypublishing.org/content/4/12/155>

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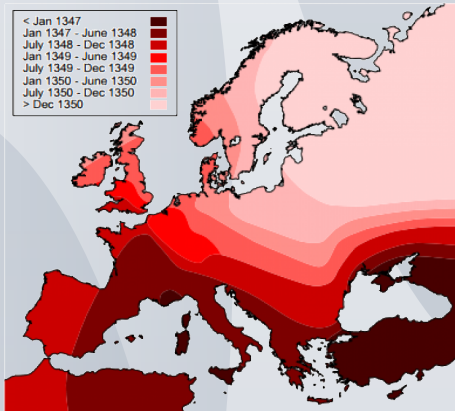
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Small world: Obvious?

Black death!



Black death: spread



source: catholic.org

<https://www.youtube.com/watch?v=EEK6c9Bh5CQ>

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`https://misovalko.github.io/mva-ml-graphs.html`

