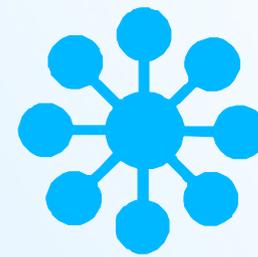


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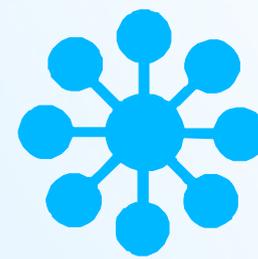
Johanna Drescher

Jens-Florian Groß

Johanna Drescher

Die 80/20 Regel

Jens-Florian Groß



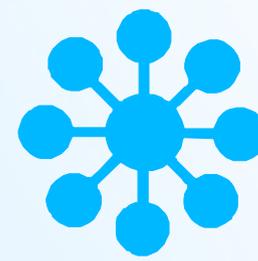
- Wie entstehen Hubs?
- Wie viele Hubs gibt es in einem gegebenen Netz?
- Warum versagen alle gängigen Modelle?

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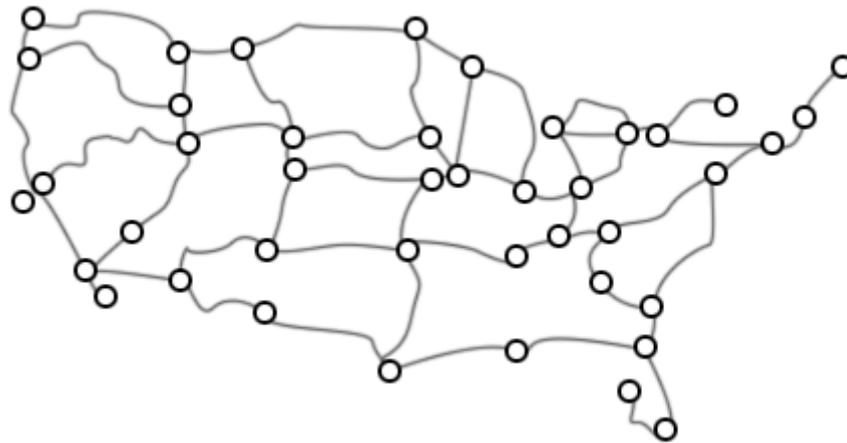
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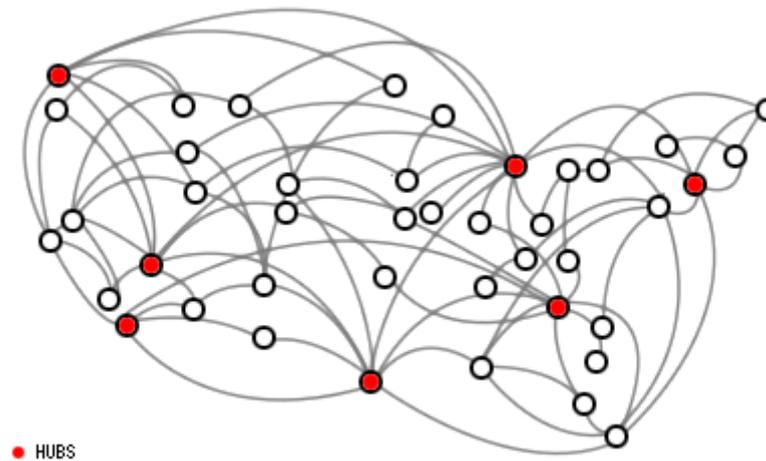
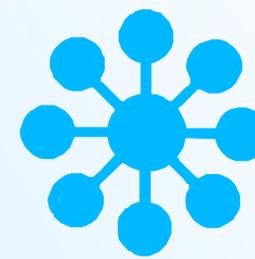


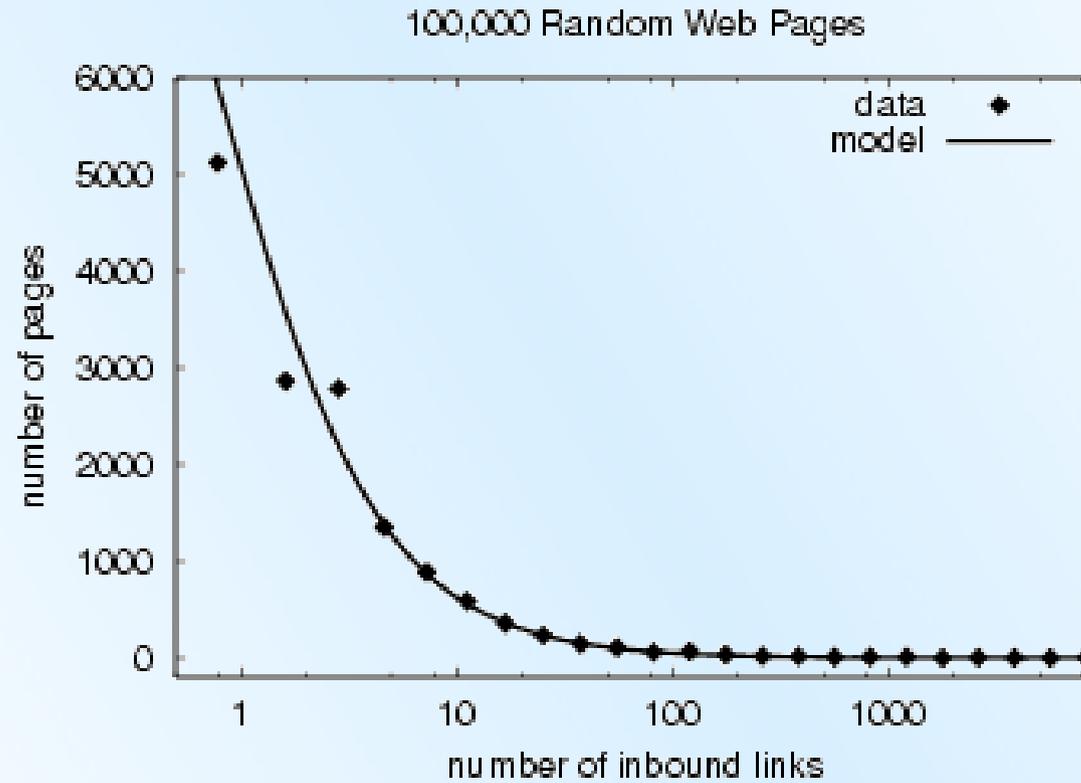
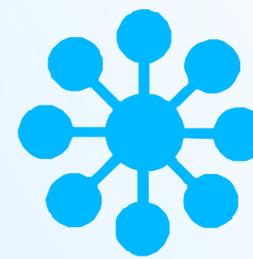
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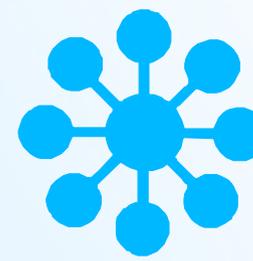
Jens-Florian Groß



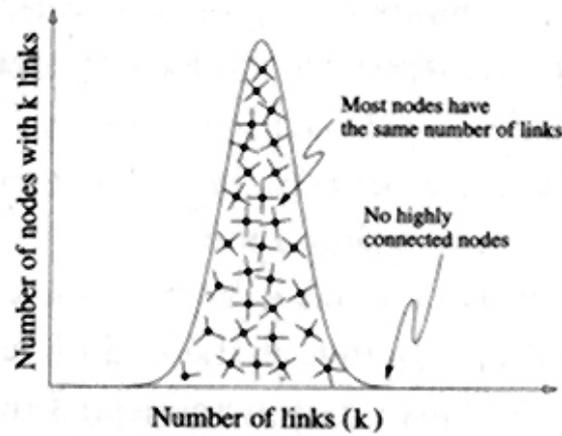




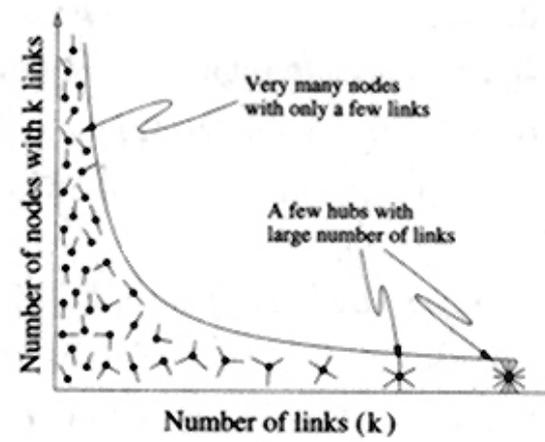
Quelle:
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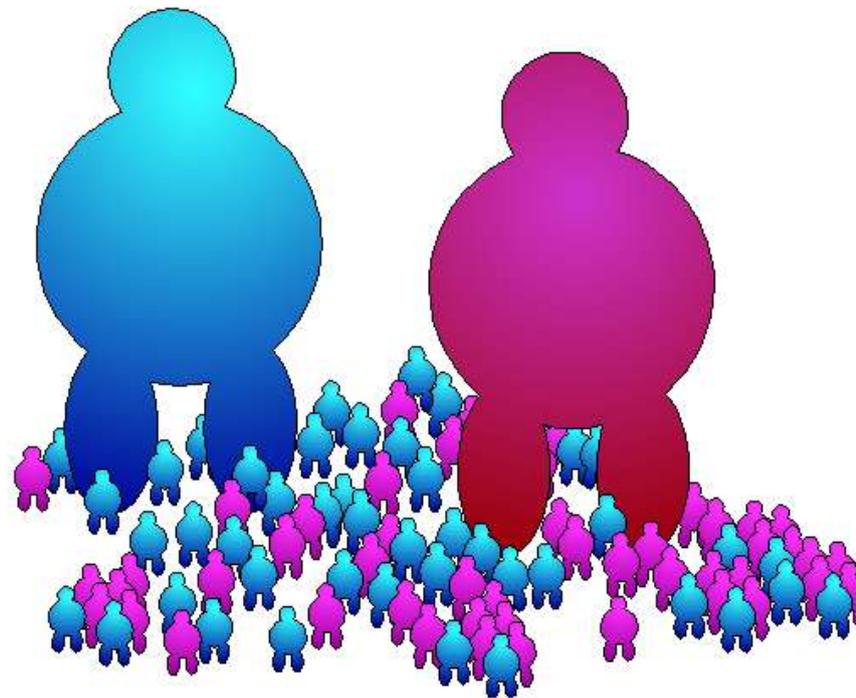
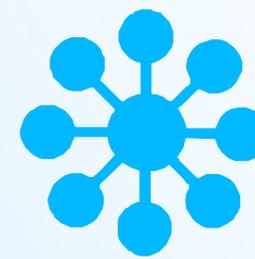


Glockenkurve



Verteilung nach Potenzgesetz



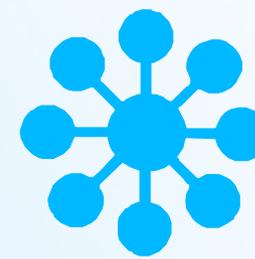


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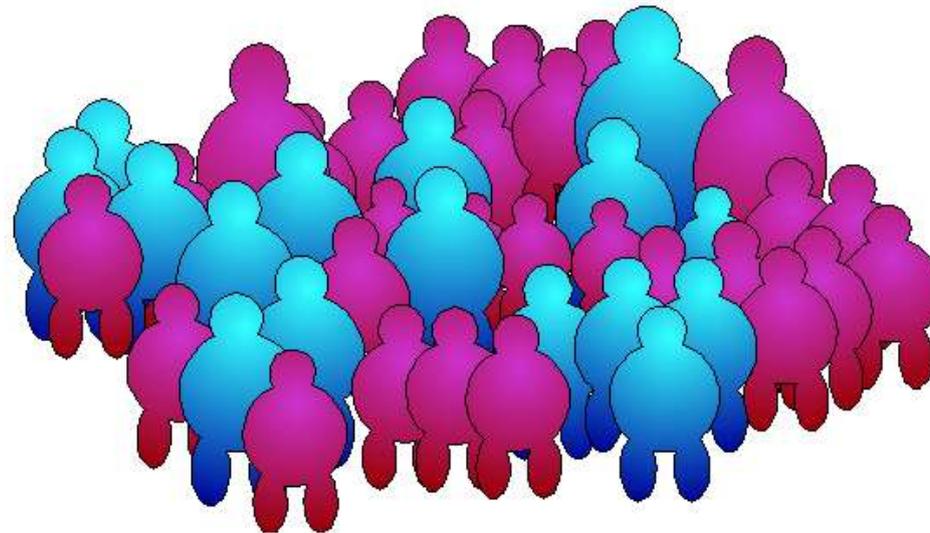
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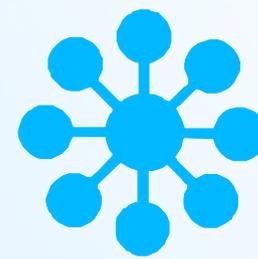


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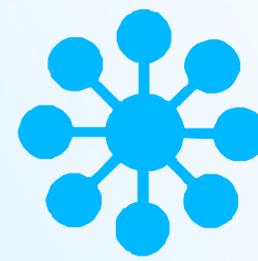
Johanna Drescher

Jens-Florian Groß



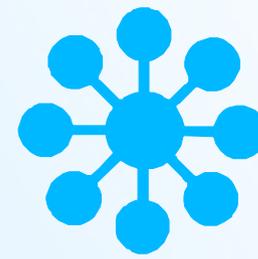


Vilfredo Pareto



Pareto Verteilung:

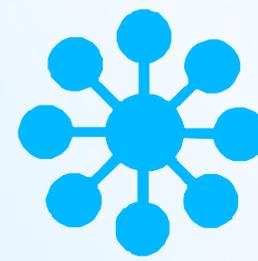
$$P(X > x) = \left(\frac{x}{x_{min}} \right)^{-k}$$



Wieso kommt es zum Auftreten der Potenzgesetze und Hubs?

Kulturinformatik: Netze

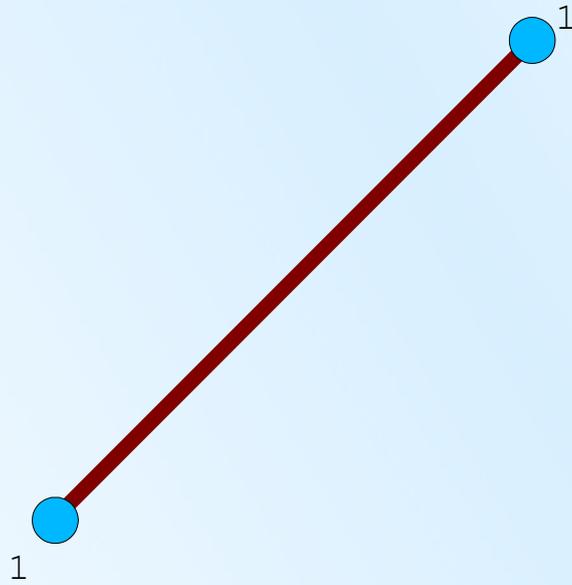
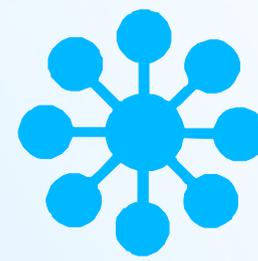
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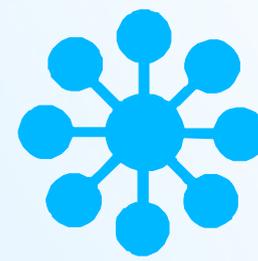


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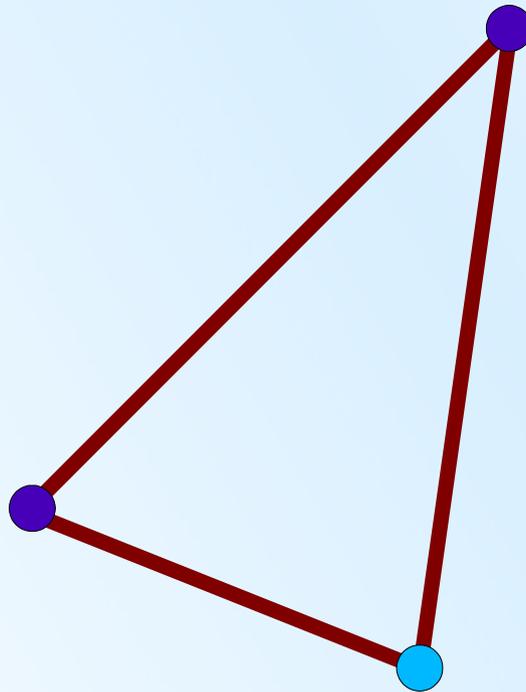
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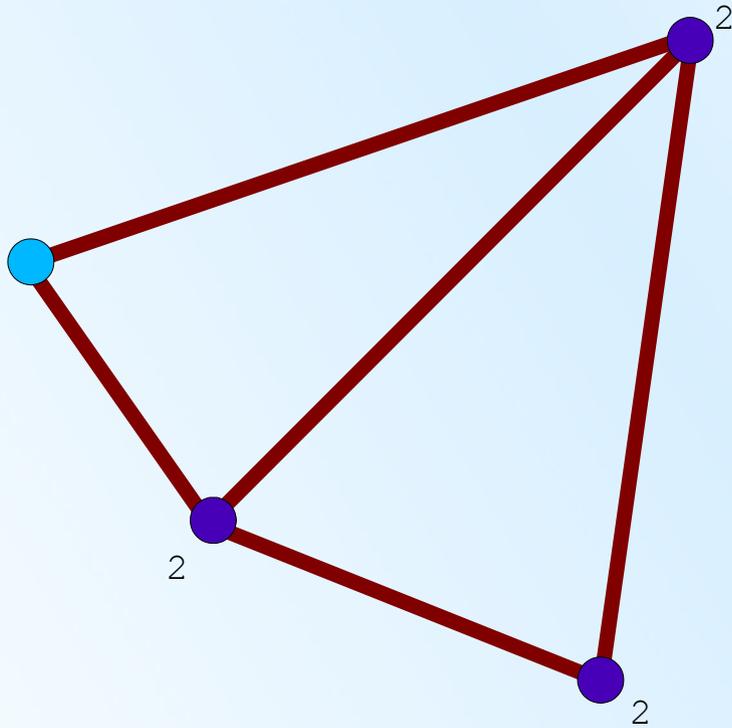
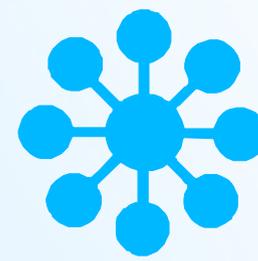


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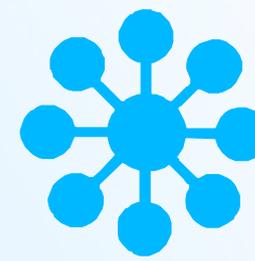


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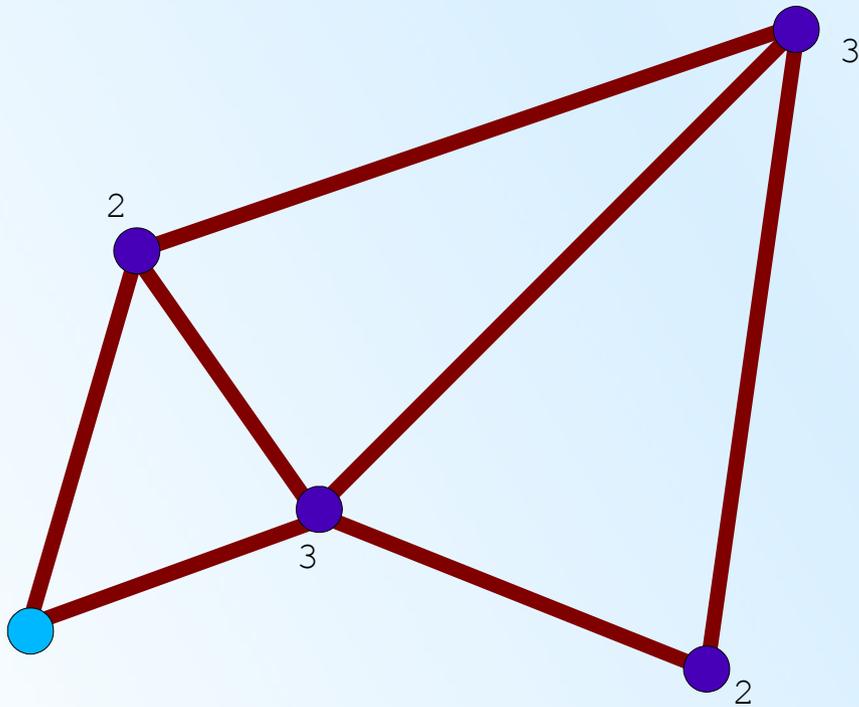
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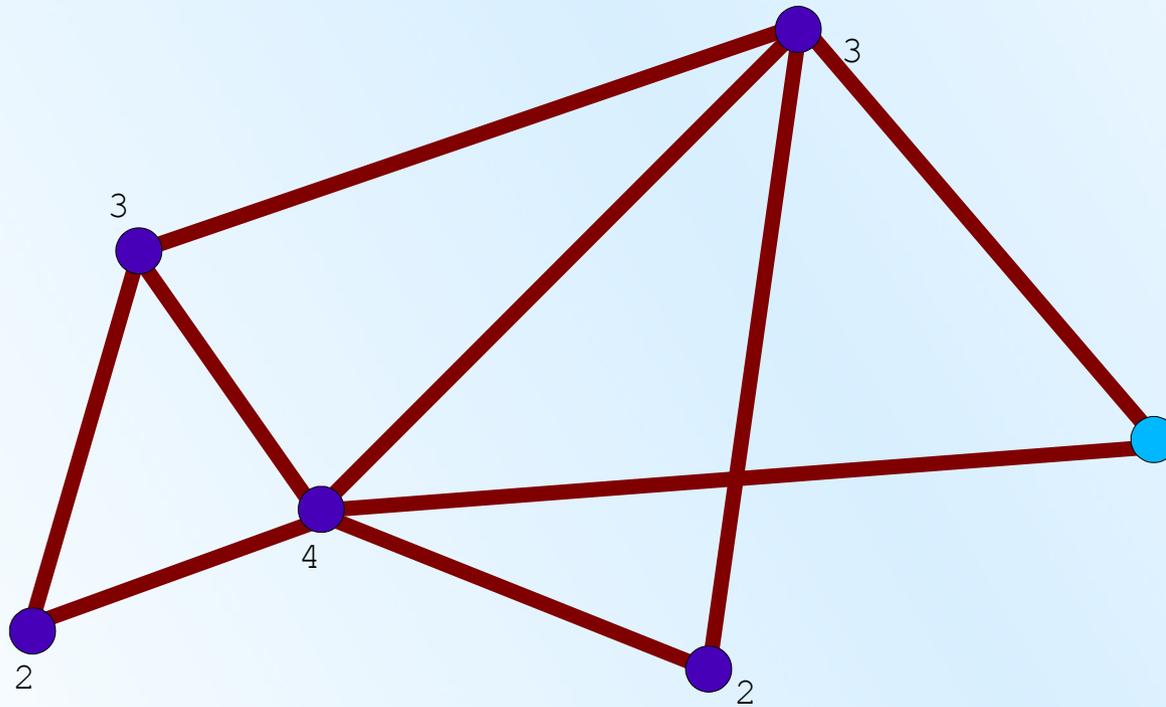
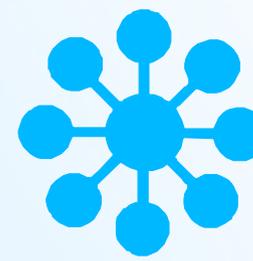


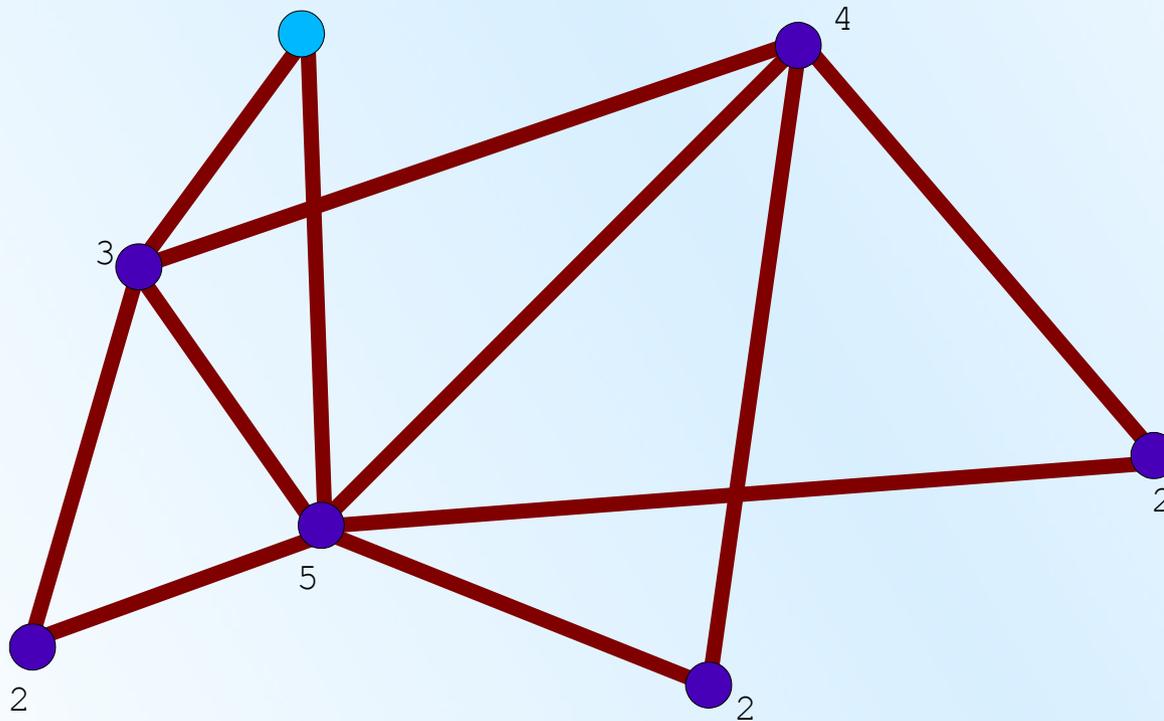
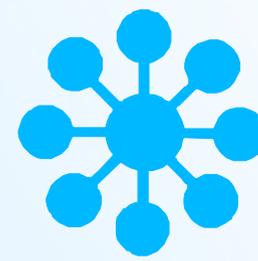
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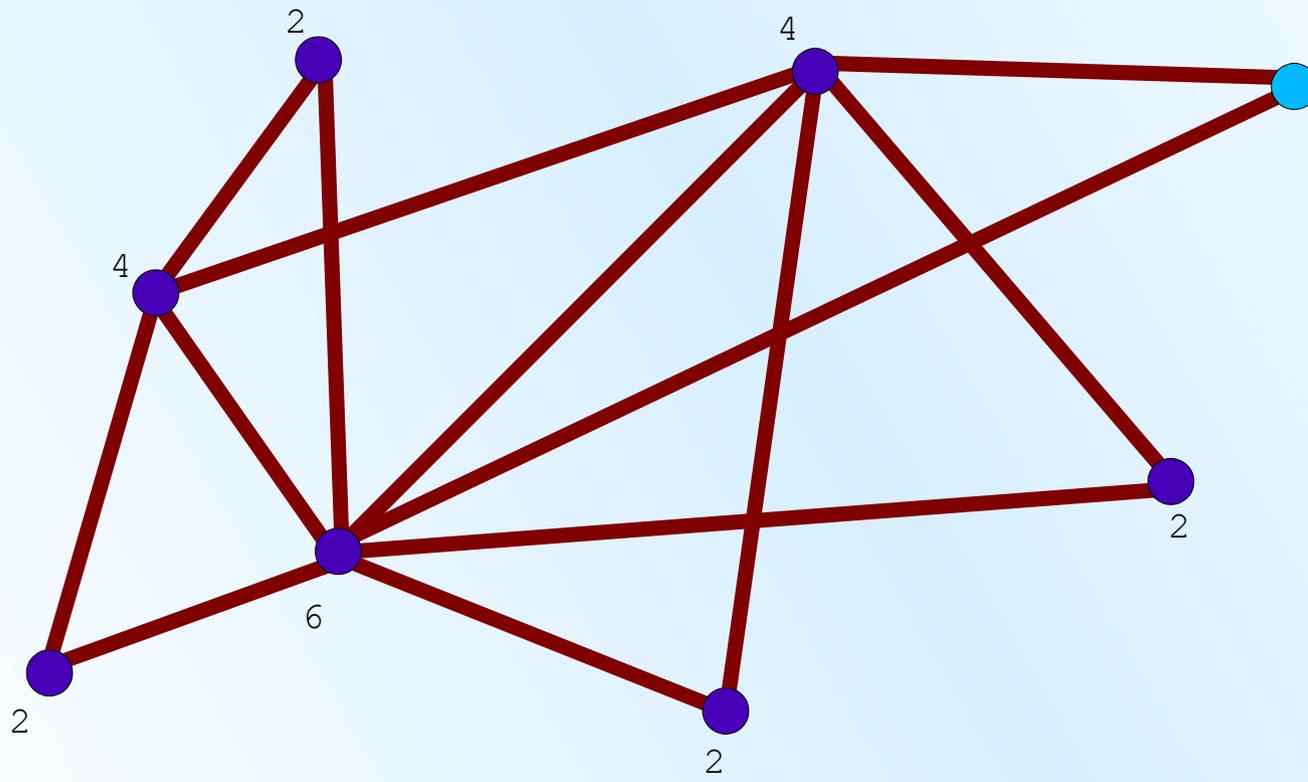
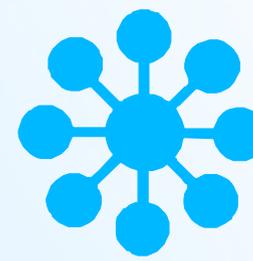
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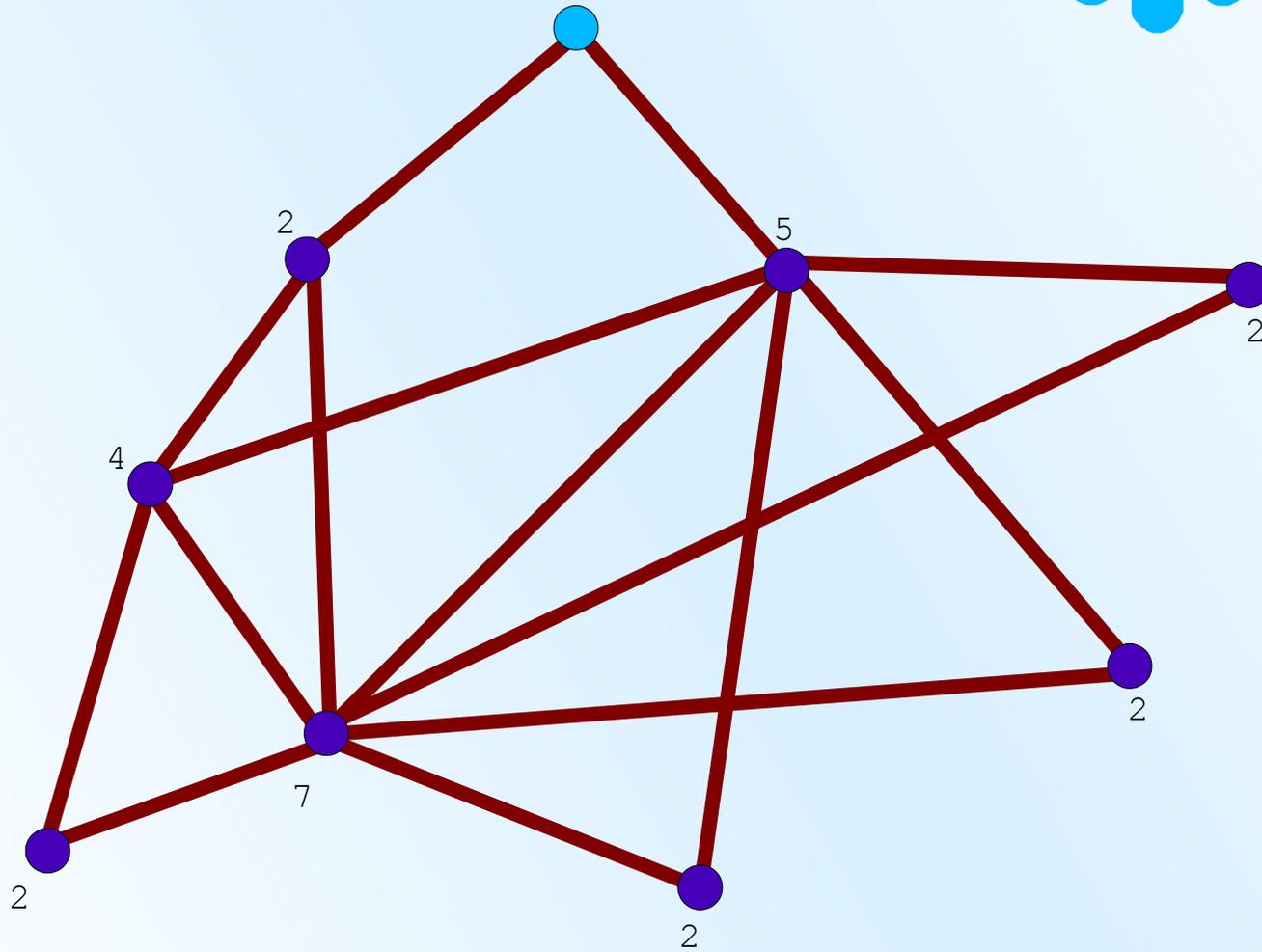
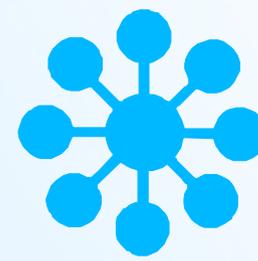
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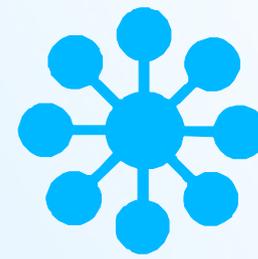


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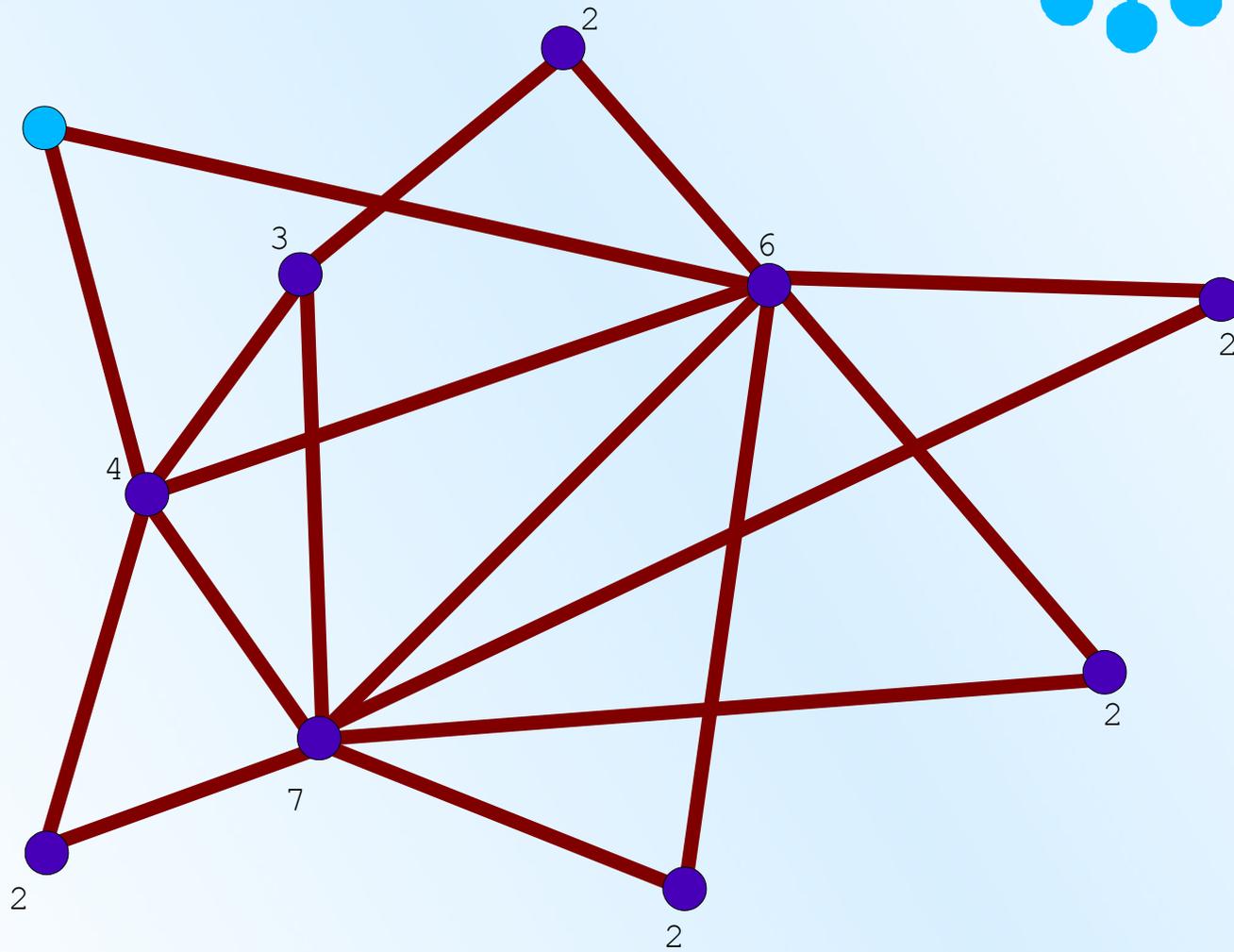
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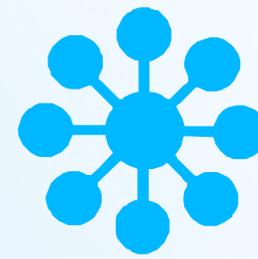
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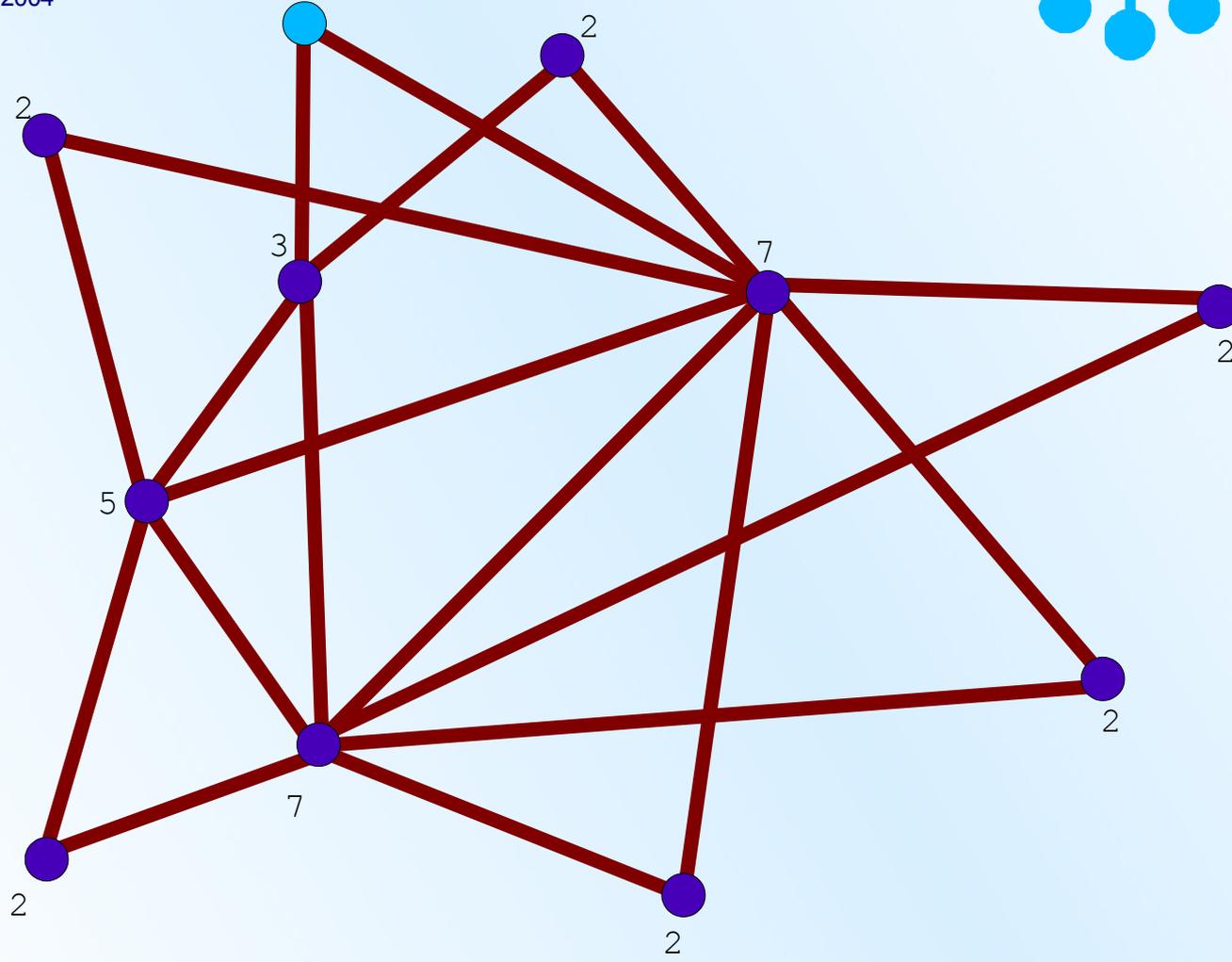
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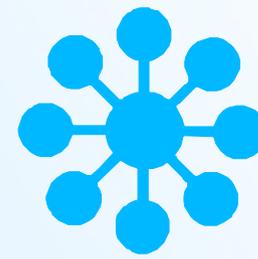
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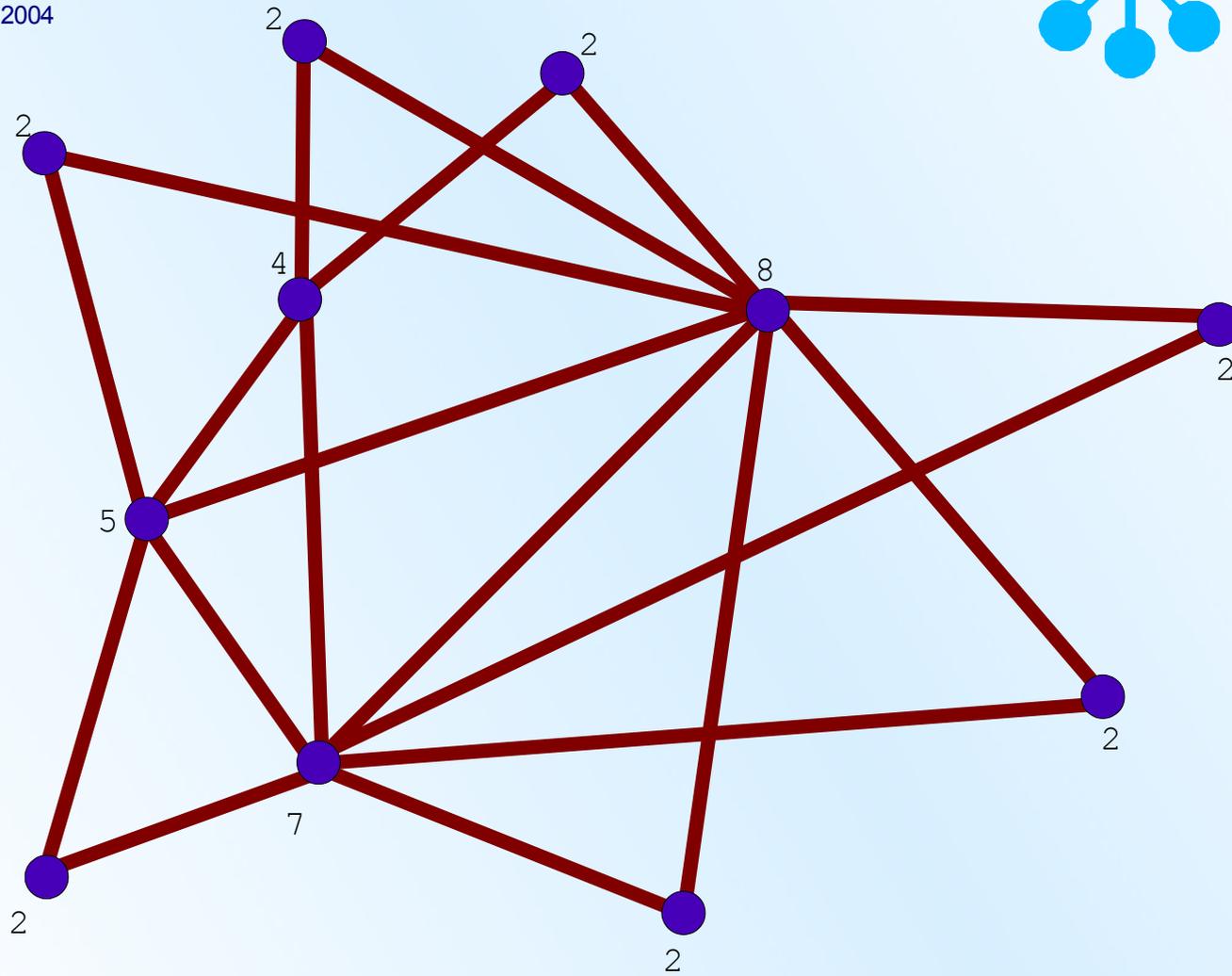
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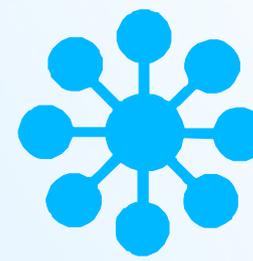
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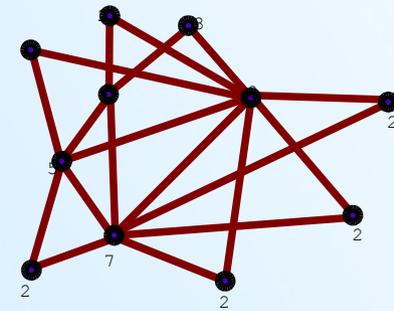
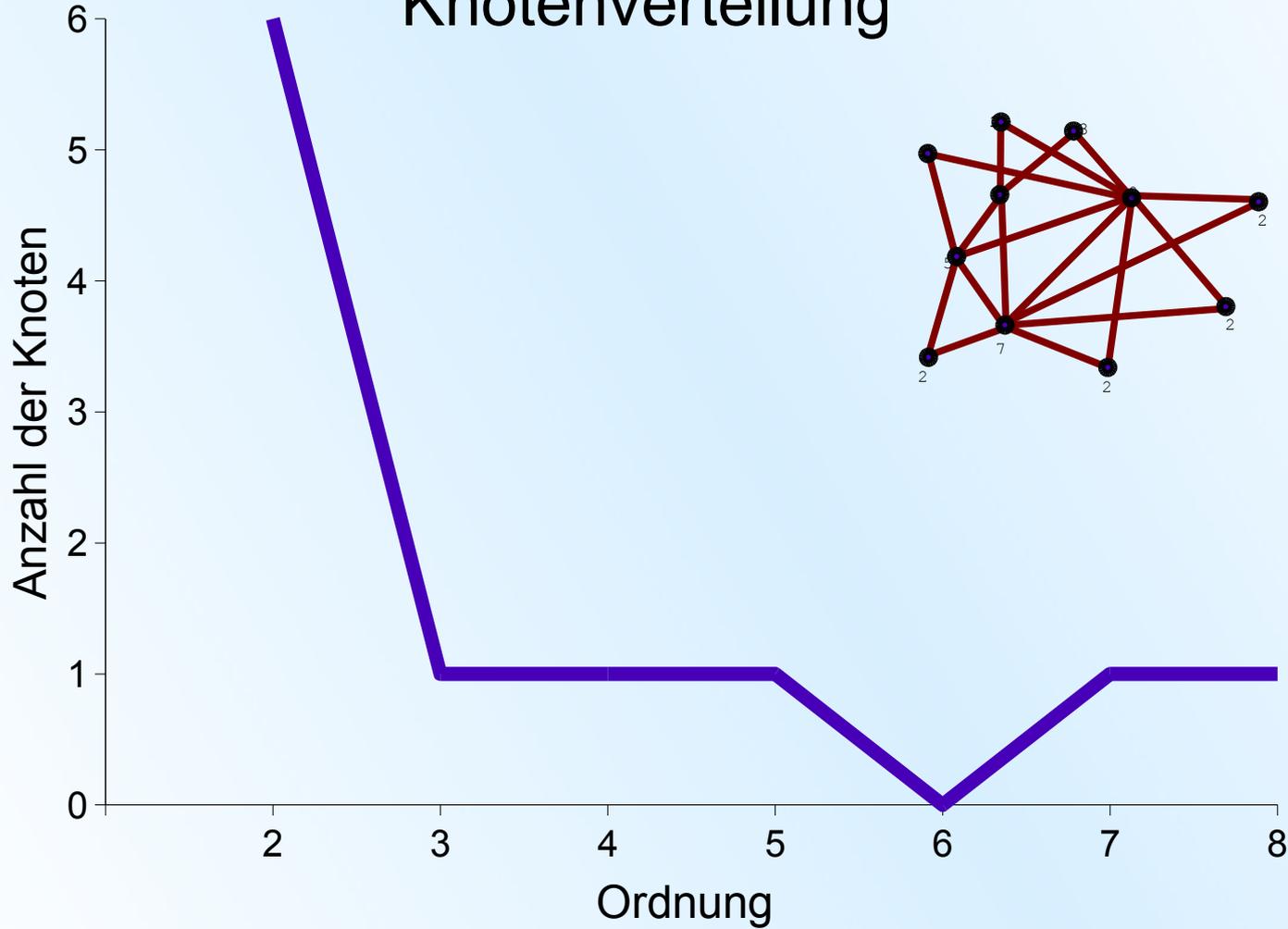
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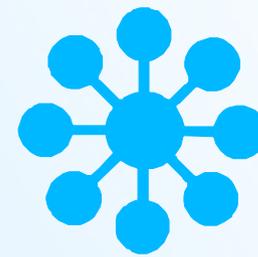
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Knotenverteilung

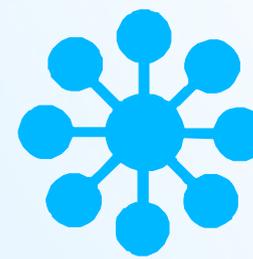




Wieso kommt es zum Auftreten der Potenzgesetze und Hubs?

Zwei einfache Regeln sind die Gründe:

- Wachstum
- preferential attachment

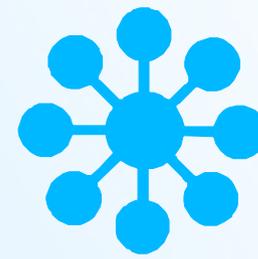


Das skalenfreie Modell von Barabasi löst noch nicht das ganze Problem!

„New kid on the block Phänomen“

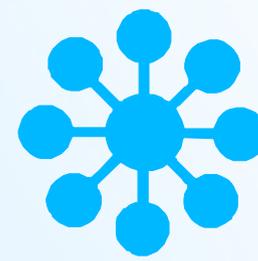
Lösung: Ergänzung des skalenfreien Modells zum Fitness-Modell

- Fitness bedeutet die Fähigkeit eines Knoten, Links anzusammeln
- Preferential Attachment wird durch das Produkt von Fitness und Anzahl der Knoten gesteuert



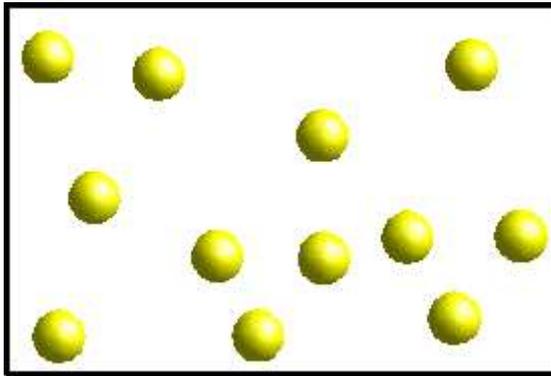
Gilt für das neue Modell auch die Power-Law-Verteilung?

Physikalischer Exkurs

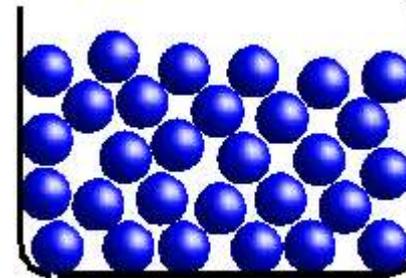


Aggregatzustände

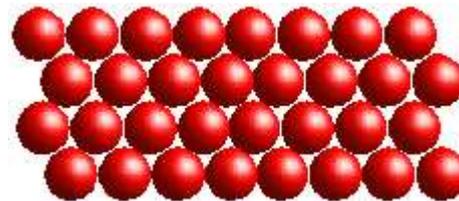
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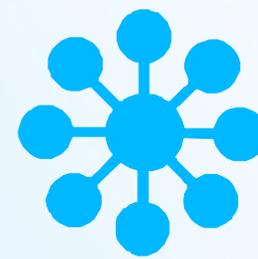


flüssig



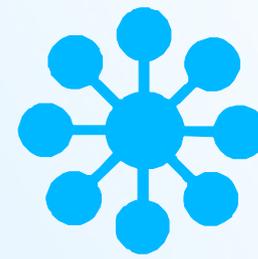
fest





Sind reale Netzwerke in einem ständigen Übergang
von Chaos zu Ordnung?

Solange es wächst, bleibt das Netz in der Übergangs-
phase ohne zur Ordnung überzugehen, es sei denn, es
unterläuft einer Bose-Einstein-Kondensation

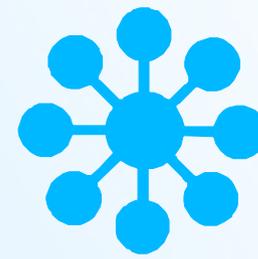


Die Bose-Einstein-Kondensation

Sie macht rechnerisch „the winner takes it all“ möglich

Kulturinformatik: Netze

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6.12.2004



Referat: Die 80/20 Regel

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Jens-Florian Groß

