Mapping landmark cases in the U.S. legal system

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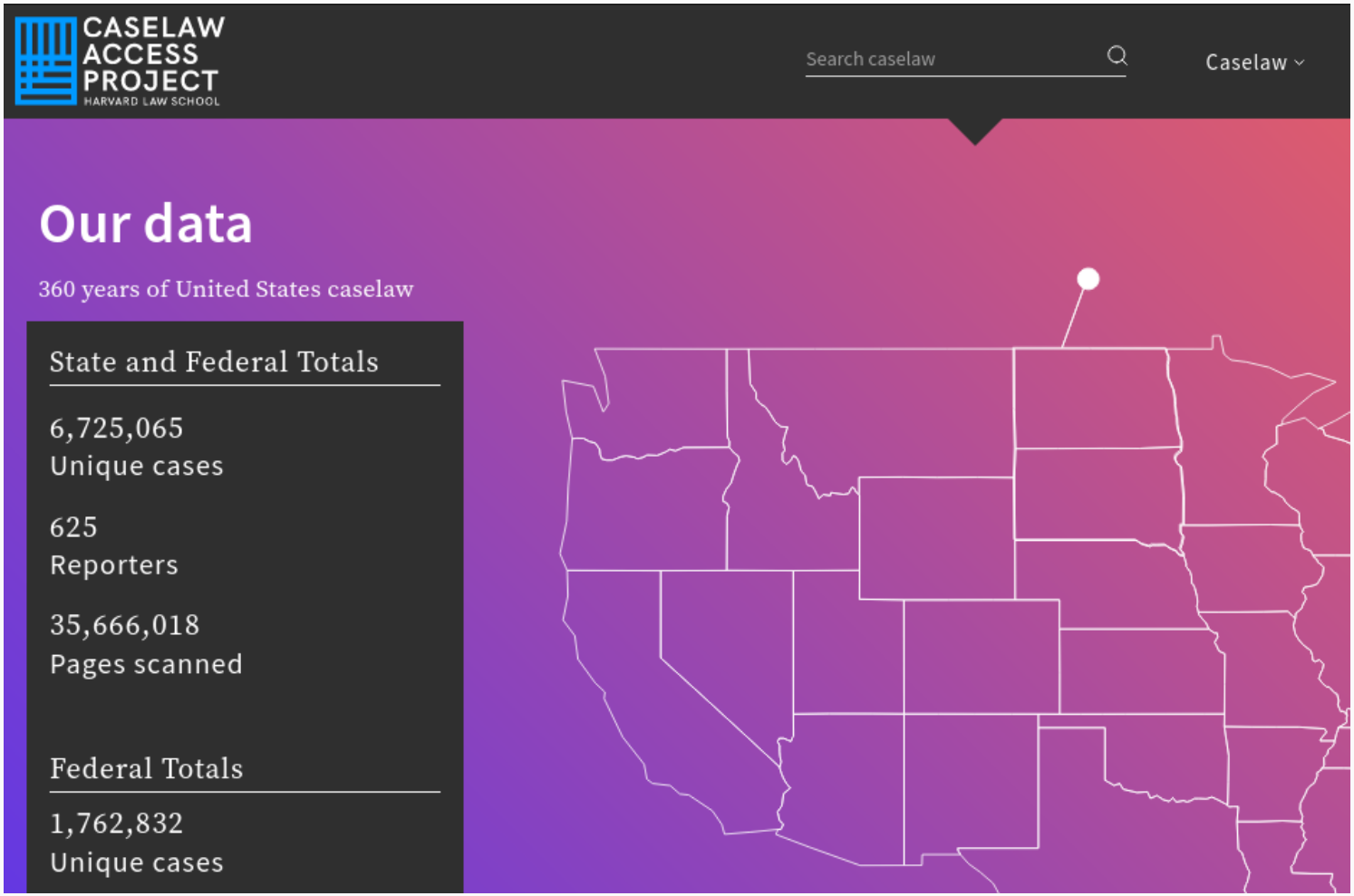
- **Landmark cases:** Become relevant by setting legal concepts or interpretations and influence many other cases.
- **Defining the properties of a landmark case through quantitative approaches remain an open problem in law research areas.**
- **Citation Networks:** Vertices with many citations play an important role in the information dynamics of *citation networks*.

Dataset: Caselaw Access Project



https://case.law/download/

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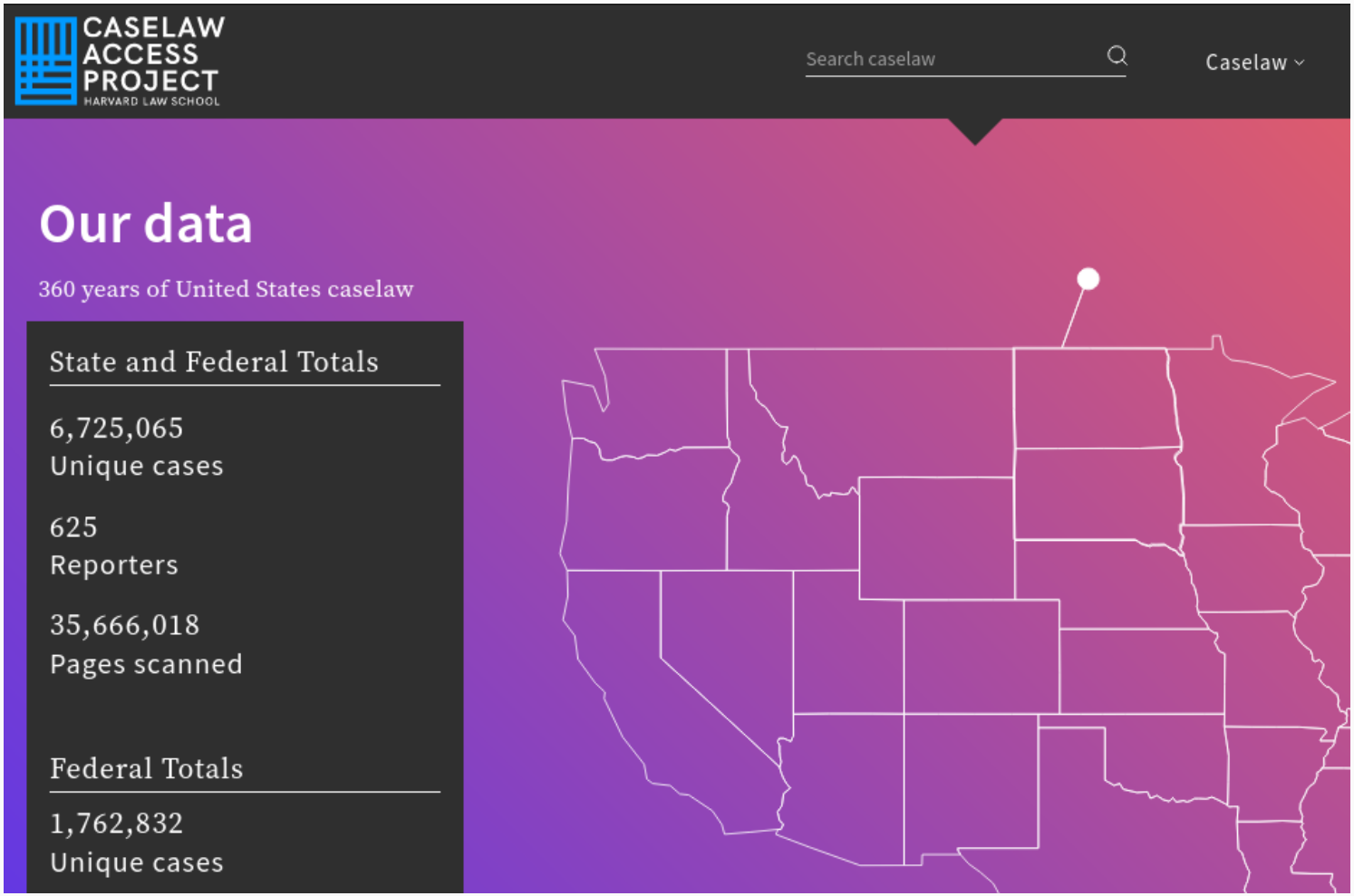

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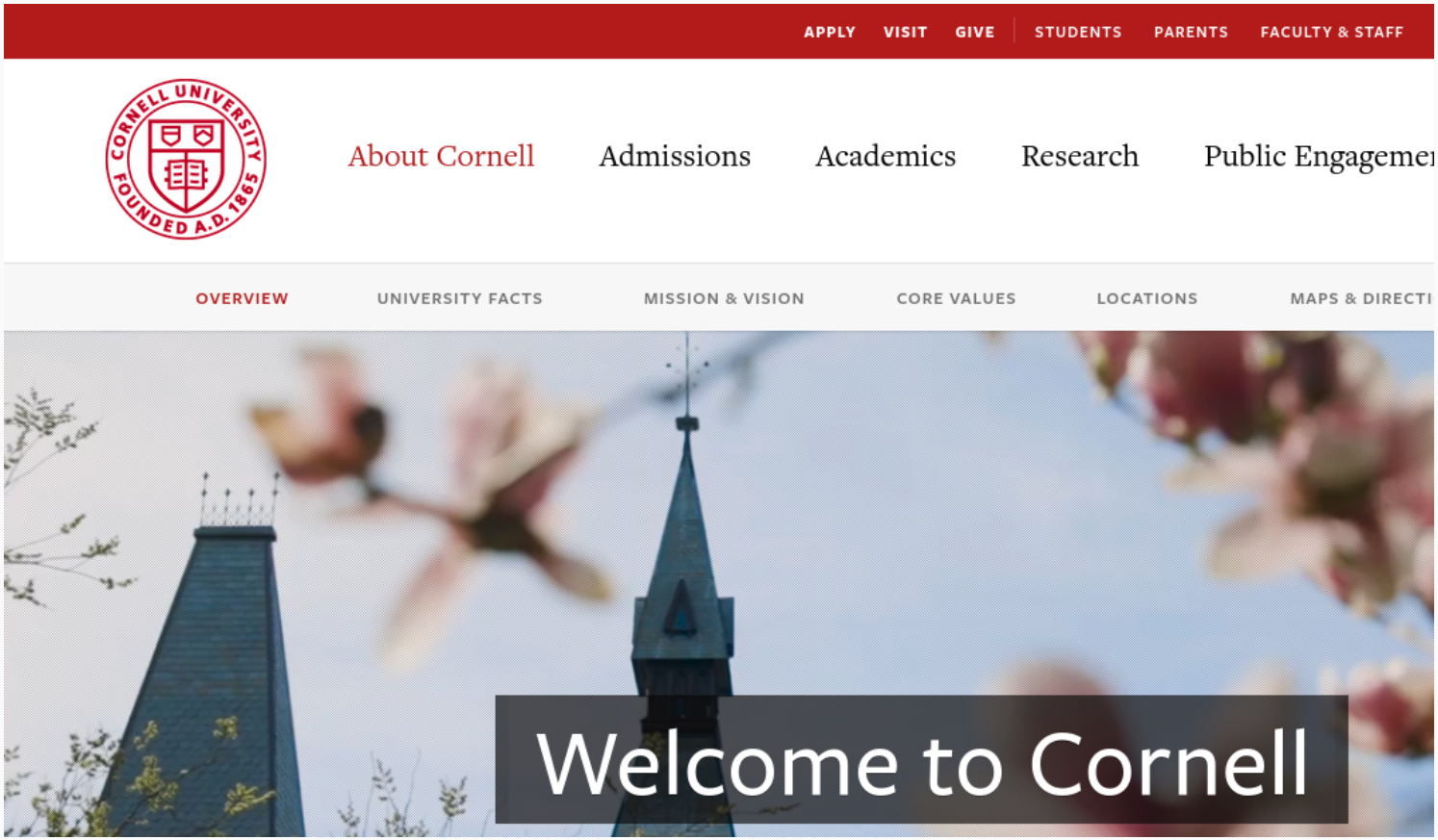
with 360 years of digitalized documents.

Dataset: Cornell University (Landmarks)



https://www.law.cornell.edu/supct/cases/name.htm

The Model

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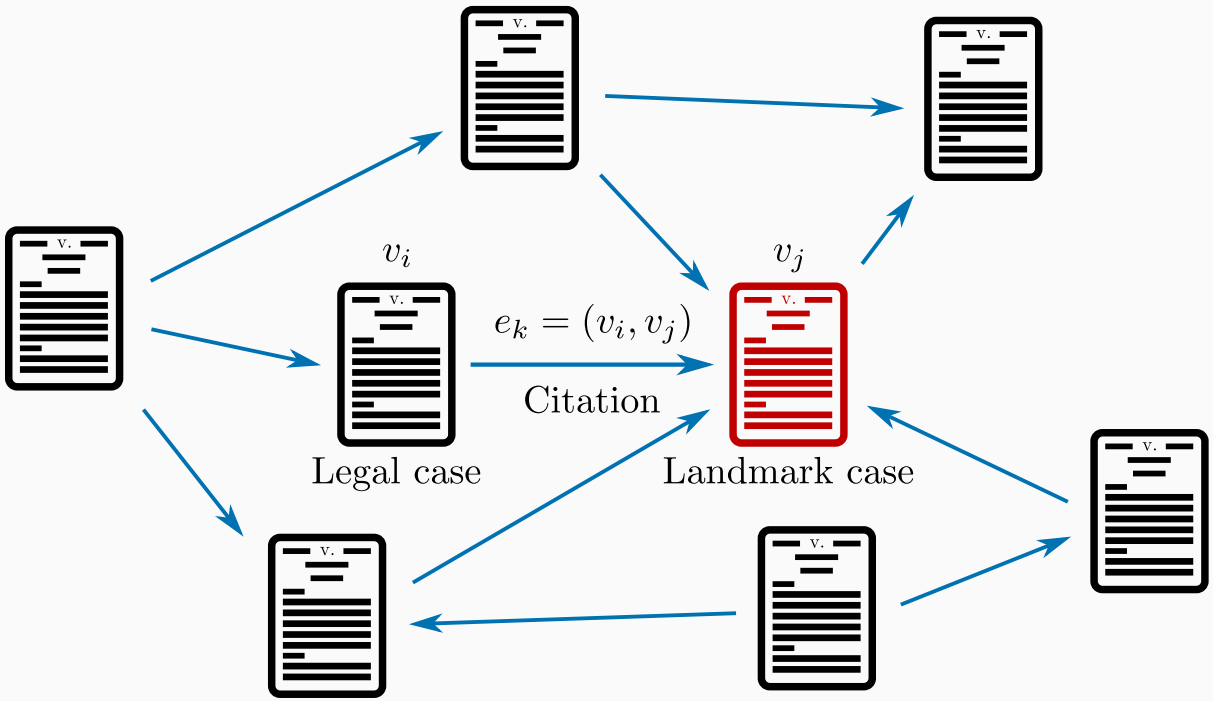

Figure: Schematic representation of the citation network. The documents and arrows represent the vertices (legal cases) and edges (citations), respectively. The citations, $e_k = (v_i, v_j)$, are assigned from vertices where arrows start, v_i, to the vertices where arrows end, v_j. Therefore, we say that v_i is citing v_j in this formalism. Furthermore, some legal cases are identified as landmark cases (red document).

Results

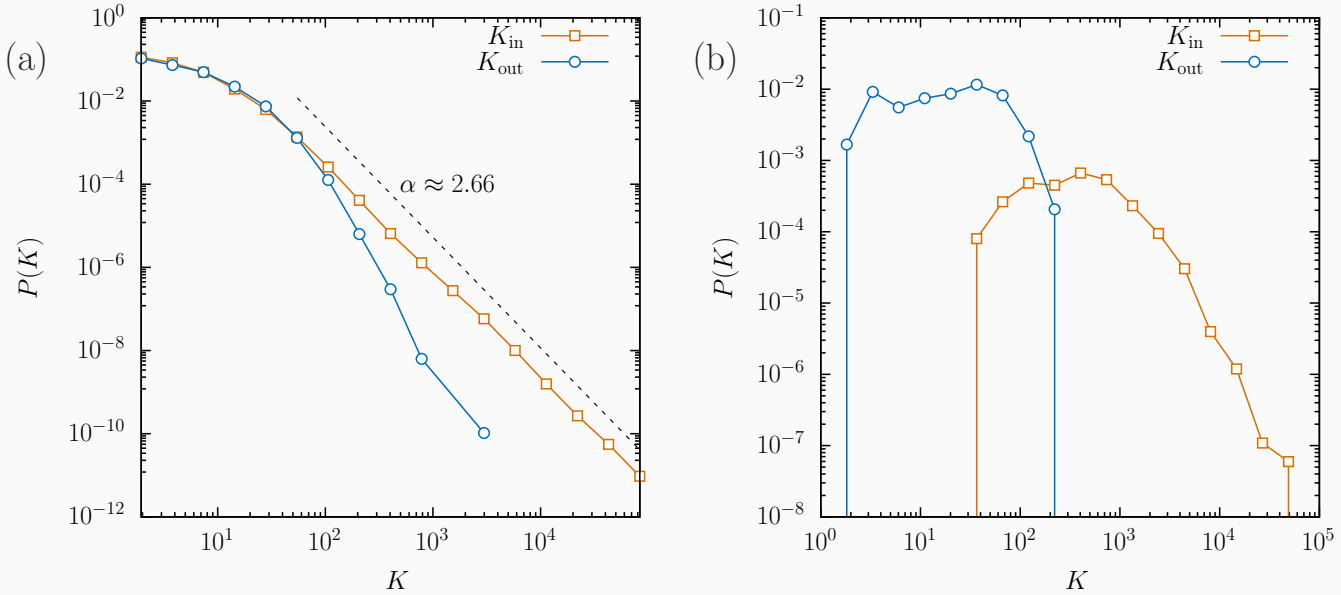

Figure: Probability distributions of K_{in} and K_{out}. (a) Probability distributions of K_{in} and K_{out} for legal cases in the citation network. As we can see, the distributions show a long-tailed behavior and $P(K_{\text{in}})$ show a pronounced power-law behavior with at least three orders of magnitude. The dashed line is a power-law $P(x) \propto x^{-\alpha}$ with $\alpha \approx 2.66$. (b) Probability distributions of K_{in} and K_{out} for the landmark cases.

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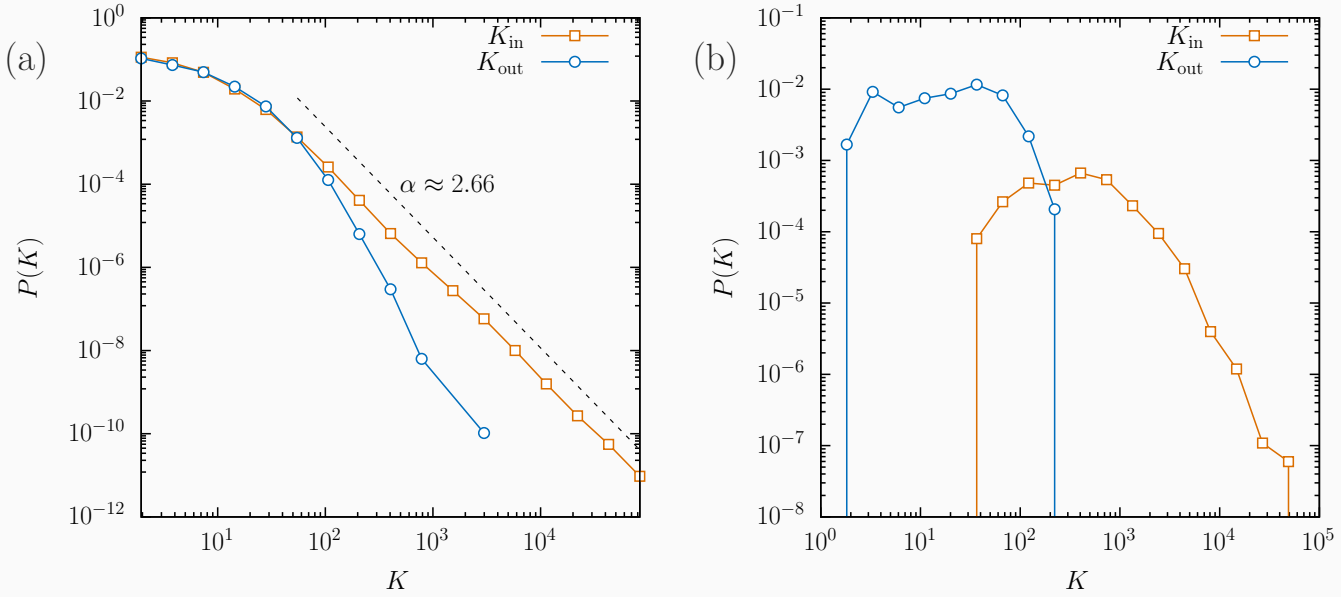

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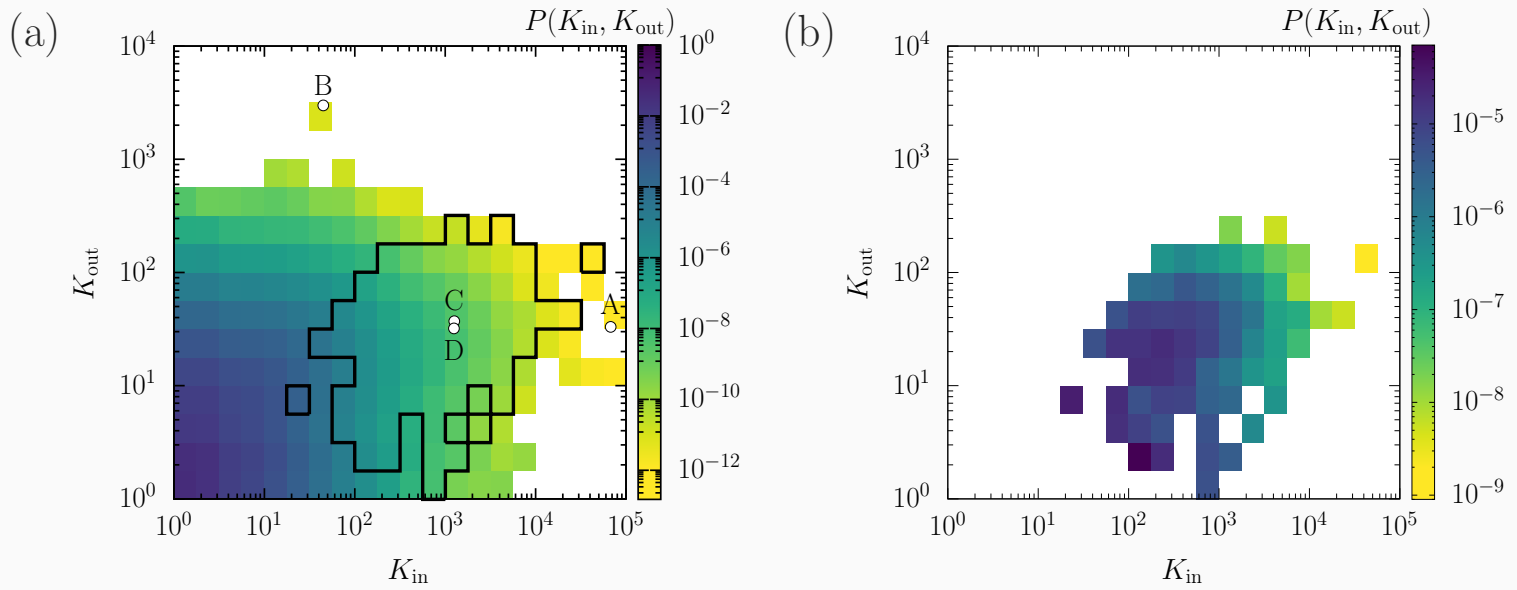

Figure: Probability distributions in the in-degree×out-degree space. (a) Probability distribution of legal cases as function of K_{in} and K_{out}. (b) Probability distribution of landmark cases as function of K_{in} and K_{out}. The black line in (a) represents the boundary of the area delimited by the distribution of landmark cases shown in (b). The points "A", "B", "C" and "D" in (a) are special legal cases.

Results

Table: Special legal cases labeled in Fig. 3.

Label	K_{in}	K_{out}	Legal case
A	66554	33	Anderson v. Liberty Lobby, Inc. (1986)
B	45	2944	Henry v. New Jersey Department of Human Services (2010)
C	1253	37	Idaho v. Wright (1990)
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- Found an area in the $K_{\text{in}} \times K_{\text{out}}$ space where landmarks are more likely to be found.

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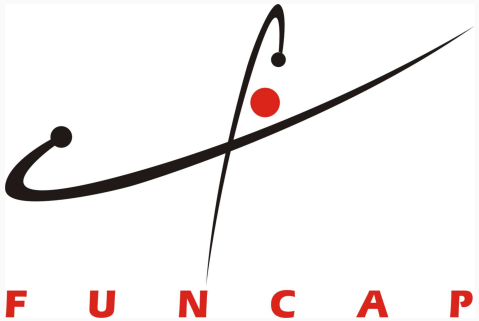

The End!

Thank you!