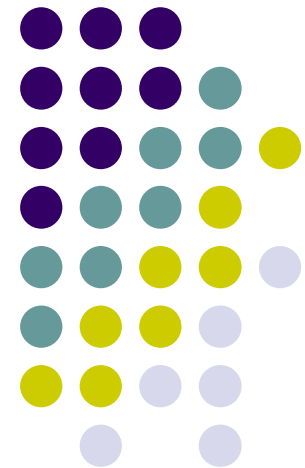


# Preventing Information Overload in Computer-Assisted Legal Research: Ranking Austrian Supreme Court Cases According to Legal Relevance

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Anton Geist  
University of Edinburgh  
University of Vienna





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# Basic Assumption: Web Search



- The more **links** (= citations) a website gets, the more **relevant** it is (irrespective of the query).
- We can use those relevance values to **rank** result lists.

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# Basic Assumption: CALR



- Computer-Assisted Legal Research and Web Search are **different so we cannot use** Web algorithms for ranking in CALR.



# Interim Result

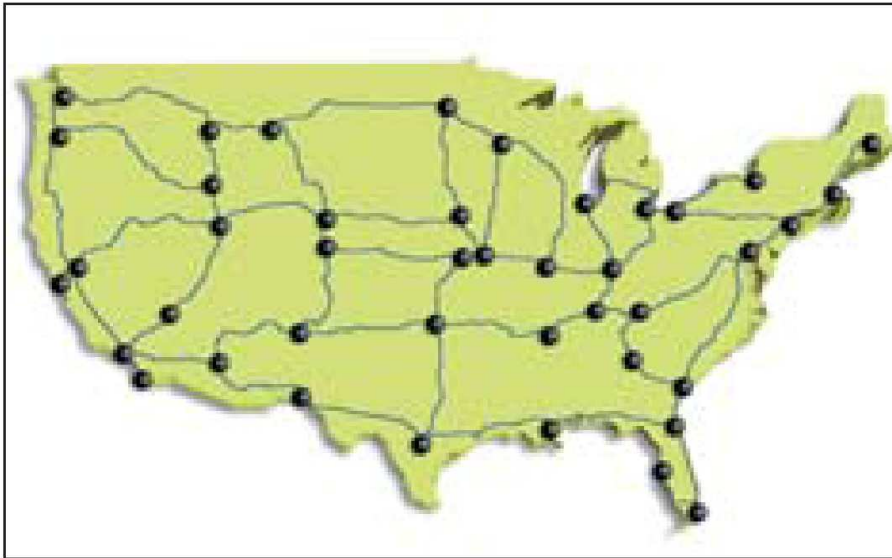
- CALR systems **do not make use** of links (citations) like modern Web search engines do.
- ... **although they could**, given the structure of legal texts (they contain a lot of citations).
- Research Hypothesis: Citation Analysis could identify court cases that are **more relevant** than others in CALR systems.

# Testing the Hypothesis – Step 1

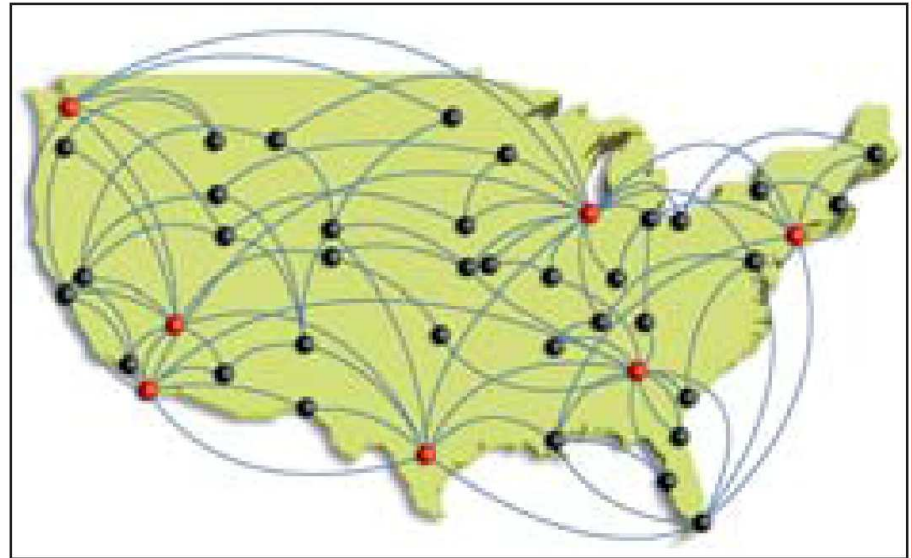


- Link/Citation analysis as a means of calculating relevance works on the Web **because of the structure of the Web.**
- If the (citation) network of the law **looks like that** of the World Wide Web, citation analysis should help with legal texts too.

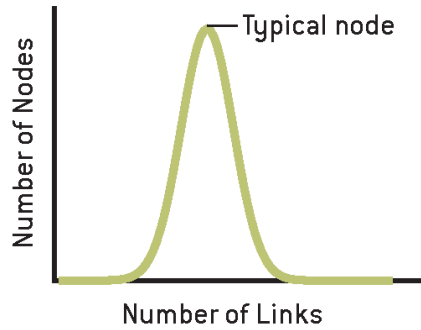
### Random Network



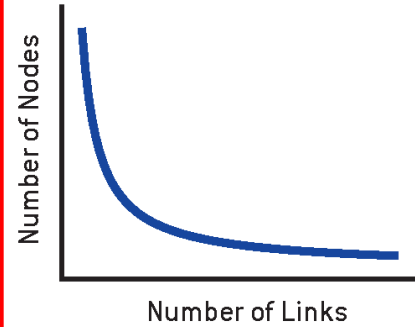
### Scale-Free Network



### Bell Curve Distribution of Node Linkages



### Power Law Distribution of Node Linkages



### Scale-Free Networks

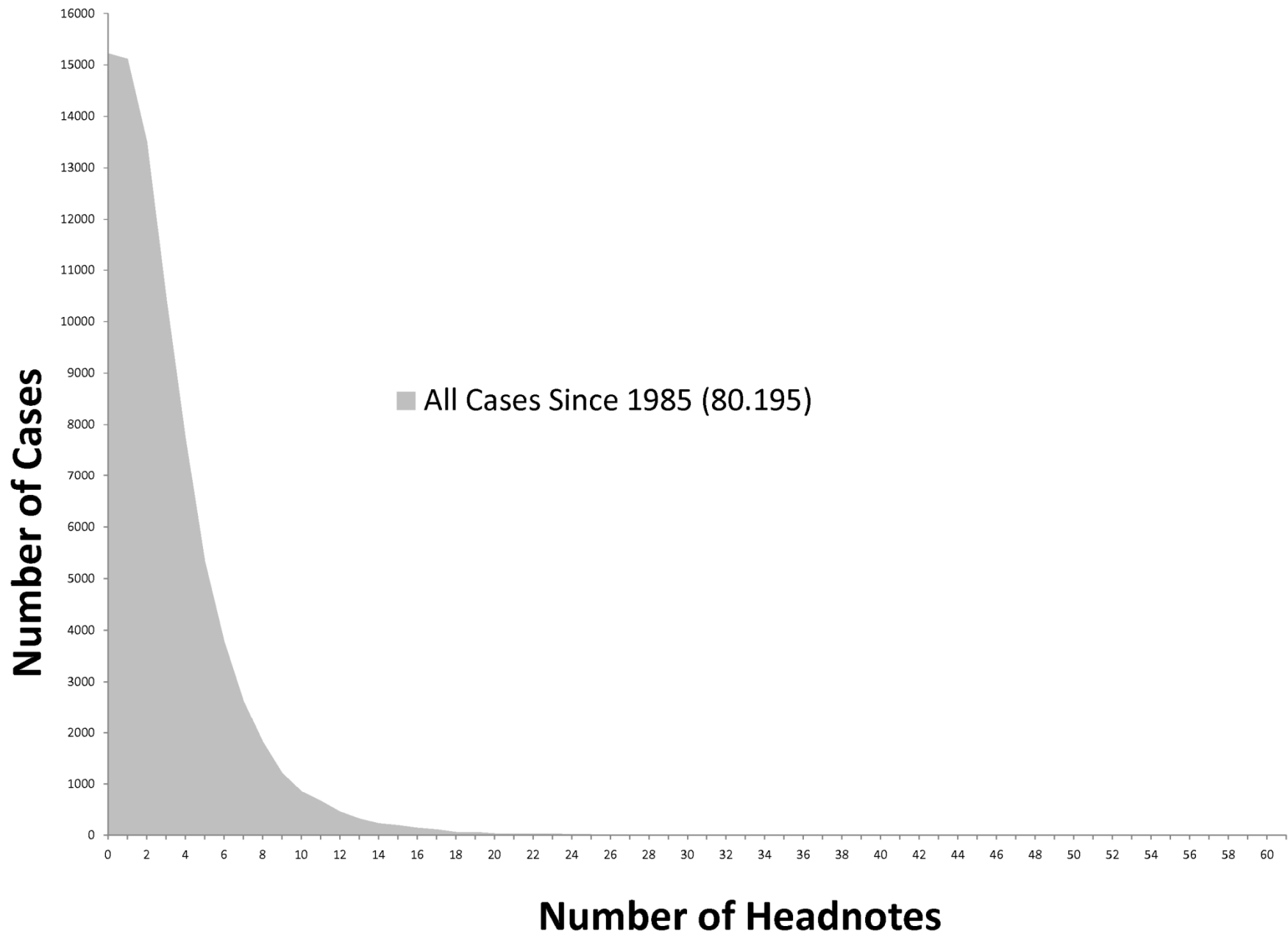
Barabasi, Albert-Laszlo; Bonabeau, Eric

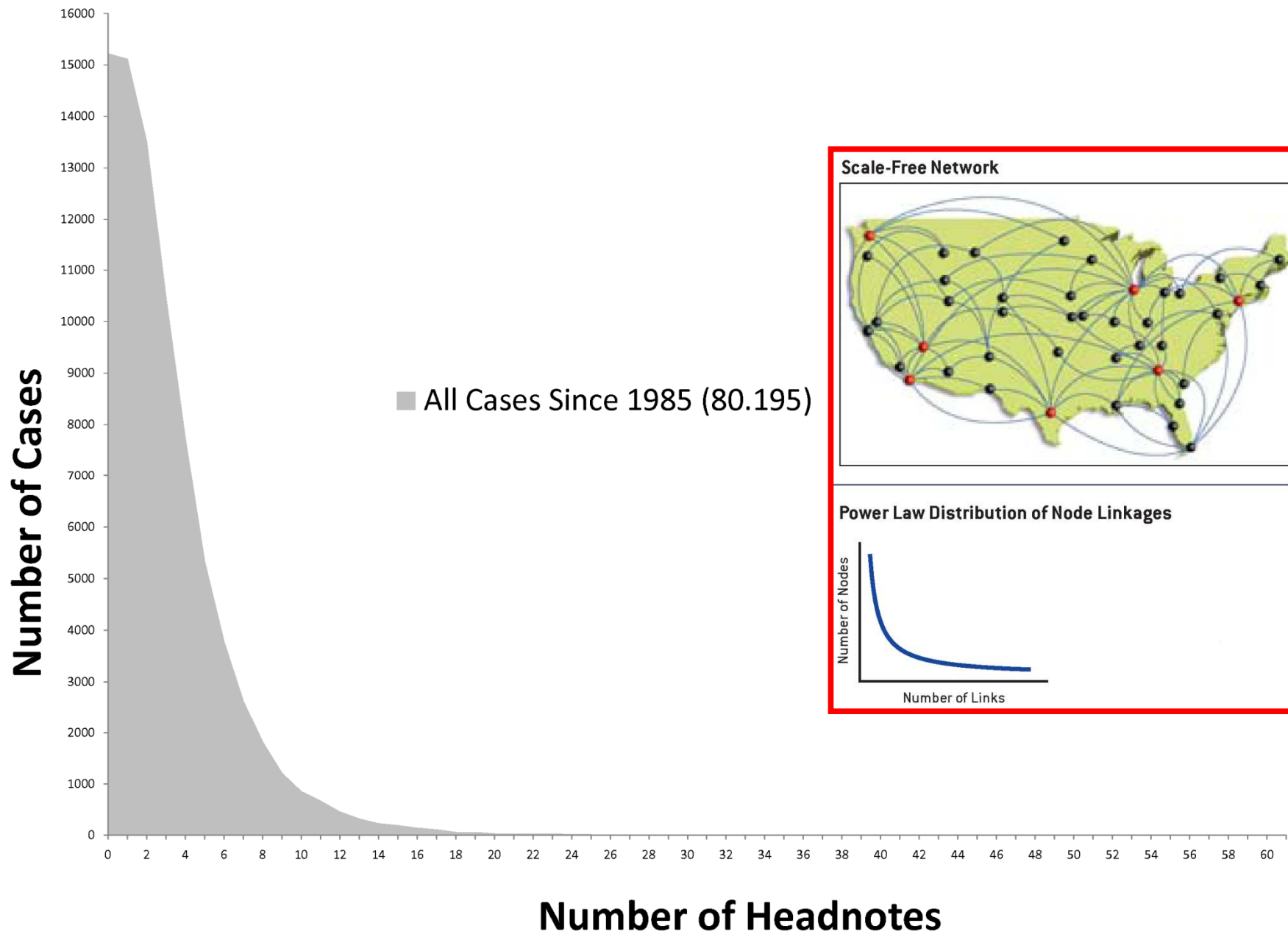
Scientific American; May 2003, Vol. 288 Issue 5, 50 - 59

# Computing the Network of Austrian Supreme Court Cases

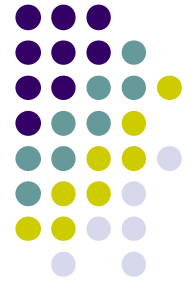


- The **full-text decisions**, and **headnotes** (a summary of a legal issue that is discussed within a case) are made available for free on the Internet by the Supreme Court. The documents are highly interrelated.
- Using the programming language Python, I processed the documents to discover their **network structure**.





# Step 1: Conclusions

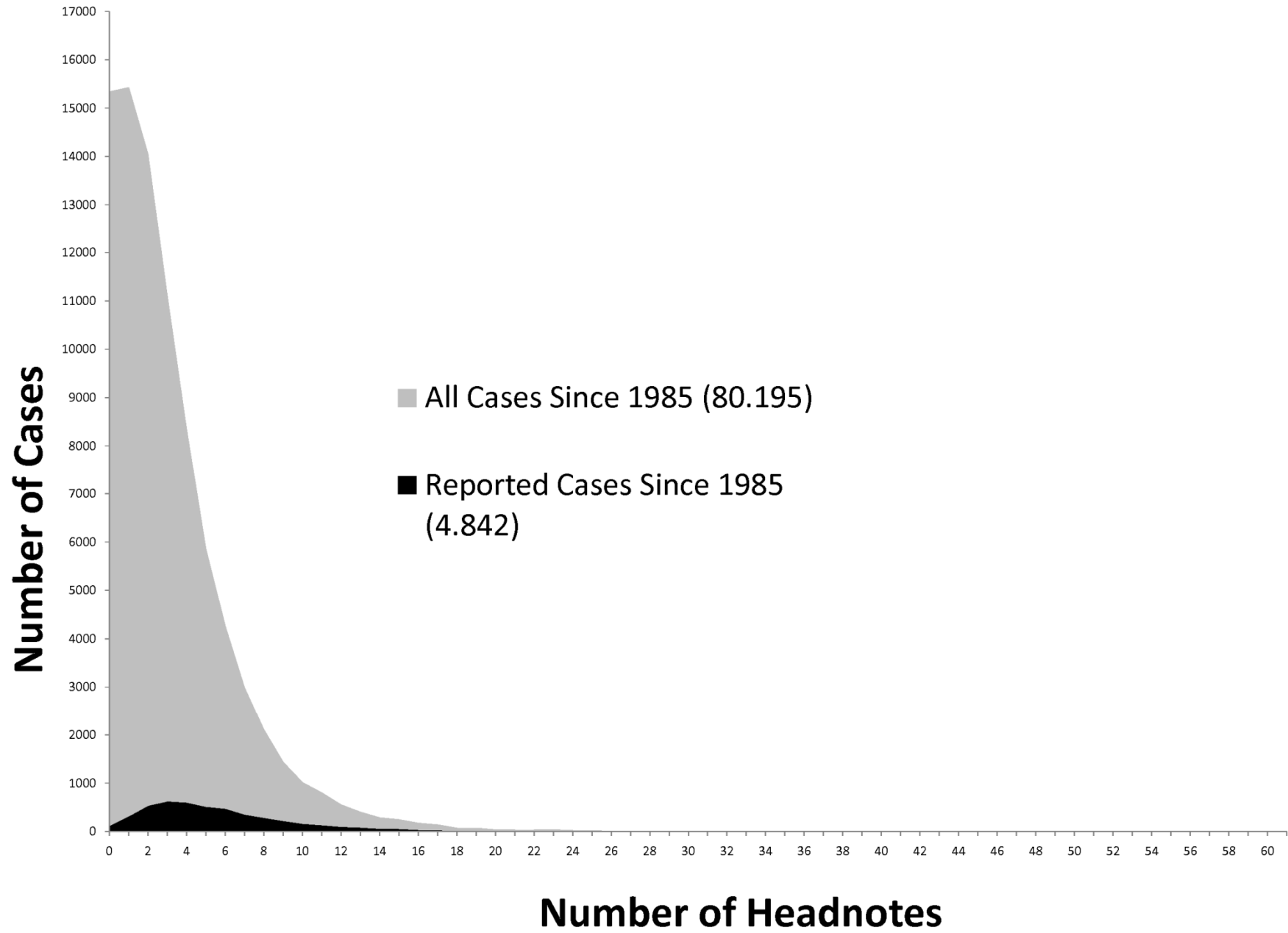


- The network of Austrian Supreme Court Cases is a **Scale-Free Network**, just like the network of the World Wide Web.
- Citation Analysis might be **just as efficient** in computing the relevance of court cases as it is in ranking Web pages.

## Testing the Hypothesis – Step 2



- A selection of Supreme Court Cases is **officially reported**, and therefore marked as being “important”.
- If the those “important” cases **are distributed unevenly** over the larger network, we can use citation data for ranking purposes.



## Step 2: Conclusions



- The **distribution** of officially reported (“important”) cases across the network of Supreme Court decisions is **highly uneven**. The network data could therefore **perfectly be used** for ranking purposes.

# Further Information



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