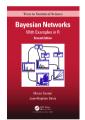
# bnlearn - an R package for Bayesian network learning and inference

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info & code

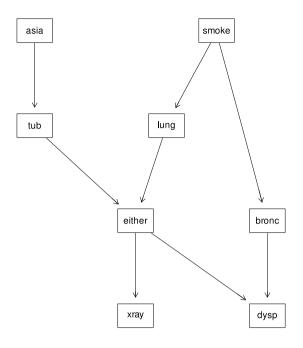


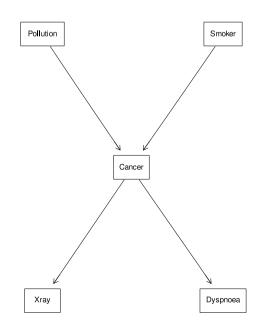
data & R code



data & R code

# Small Networks (<20 nodes)





### ASIA (sometimes called LUNG CANCER)

Number of nodes: 8 Number of arcs: 8

Number of parameters: 18 Average Markov blanket size: 2.5

Average degree: 2

Maximum in-degree: 2

BIF (310B)

DSC (322B)

NET (276B)

RDA (bn.fit) (551B)

RDS (bn.fit) (538B)

S. Lauritzen, D. Spiegelhalter. Local Computation with Probabilities on Graphical Structures and their Application to Expert Systems (with discussion). Journal of the Royal Statistical Society: Series B (Statistical Methodology), 50(2):157-224, 1988.

## **CANCER**

Number of nodes: 5 Number of arcs: 4

Number of parameters: 10 Average Markov blanket size: 2

Average degree: 1.6 Maximum in-degree: 2

BIF (288B)

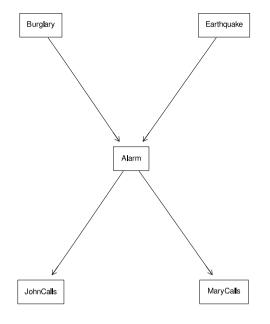
DSC (294B)

**NET** (256B)

RDA (bn.fit) (520B)

RDS (bn.fit) (508B)

K. B. Korb, A. E. Nicholson. Bayesian Artificial Intelligence, 2nd edition, Section 2.2.2. CRC Press, 2010.



#### **EARTHQUAKE**

Number of nodes: 5 Number of arcs: 4 Number of parameters: 10

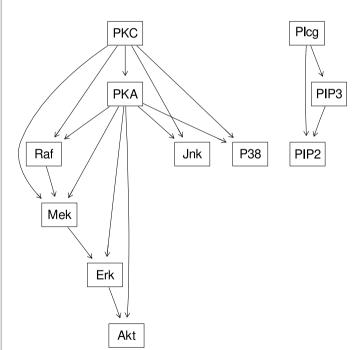
Average Markov blanket size: 2 Average degree: 1.6 Maximum in-degree: 2

BIF (271B)
DSC (282B)

<u>NET</u> (243B)

RDA (bn.fit) (482B)
RDS (bn.fit) (470B)

K. B. Korb, A. E. Nicholson. Bayesian Artificial Intelligence, 2nd edition, Section 2.5.1. CRC Press, 2010.



### SACHS

Number of nodes: 11 Number of arcs: 17 Number of parameters: 178 Average Markov blanket size: 3.09

Average degree: 3.09 Maximum in-degree: 3

BIF (1.9kB)

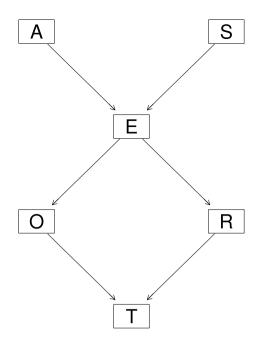
<u>DSC</u> (1.9kB)

<u>NET</u> (1.7kB)

RDA (bn.fit) (2.4kB)

RDS (bn.fit) (2.4kB)

K. Sachs, O. Perez, D. Pe'er, D. A. Lauffenburger and G. P. Nolan. Causal Protein-Signaling Networks Derived from Multiparameter Single-Cell Data. Science, 308:523-529, 2005.



# SURVEY

Number of nodes: 6 Number of arcs: 6 Number of parameters: 21

Average Markov blanket size: 2.67

Average degree: 2 Maximum in-degree: 2

BIF (368B)

DSC (360B)

NET (306B)

RDA (bn.fit) (617B)

RDS (bn.fit) (606B)

M. Scutari and J.-B. Denis. Bayesian Networks: with Examples in R. Chapman & Hall, 2nd edition, 2021.

 $\textit{Last updated on } \boxed{ \text{Tue Nov 29 13:13:21 2022} } \textit{ with } \textit{bnlearn } \boxed{ 4.9-20221107 } \textit{ and } \boxed{ \text{R version 4.2.2 Patched (2022-11-10 r83330) } .$ 



