

# analysing multivariate (social) networks



framework to assess the interdependence between composition and structure include

- ✓ finding informative dyads and triads (and also higher order configurations)
- ✓ explore the data to inspire further investigations
- ✓ identify social phenomena and processes
- ✓ specify various multivariate models (multiplex, multi-level, etc. )

**measures of spread, flatness, association and dependence  
that are based on entropy and developed in information theory**

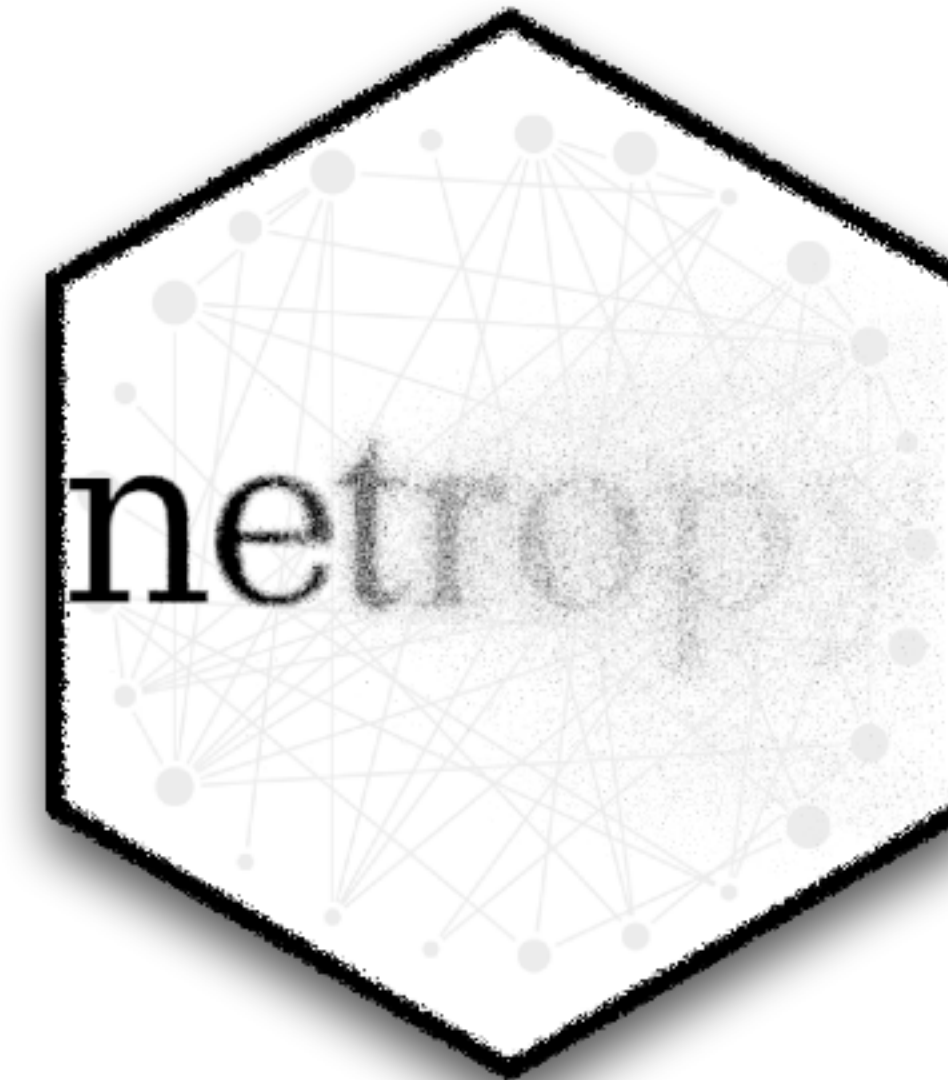
multivariate statistical entropies are used to find

- ✓ redundancies
- ✓ (conditional) dependencies
- ✓ functional dependencies

among a multi-dimensional set of variables measured on different scales

# R package {netropy}

```
install.packages("netropy")  
  
# install.packages("devtools")  
devtools::install_github("termehs/netropy")
```



☑ running example: network study of corporate law firm\*

relations between 71 lawyers of a firm:	actor attributes:
<ul style="list-style-type: none"><li>- undirected co-work</li><li>- directed advice</li><li>- directed friendship</li></ul>	<ul style="list-style-type: none"><li>- seniority</li><li>- formal status</li><li>- gender</li><li>- office location</li><li>- years with the firm</li><li>- age</li><li>- practice</li><li>- law school attended</li></ul>

```
data(lawdata)  
adj.advice <- lawdata[[1]]  
adj.friend <- lawdata[[2]]  
adj.cowork <- lawdata[[3]]  
df.att <- lawdata[[4]]
```

\*Lazega E., *The Collegial Phenomenon: The Social Mechanisms of Cooperation Among Peers in a Corporate Law Partnership*, Oxford University Press (2001)