

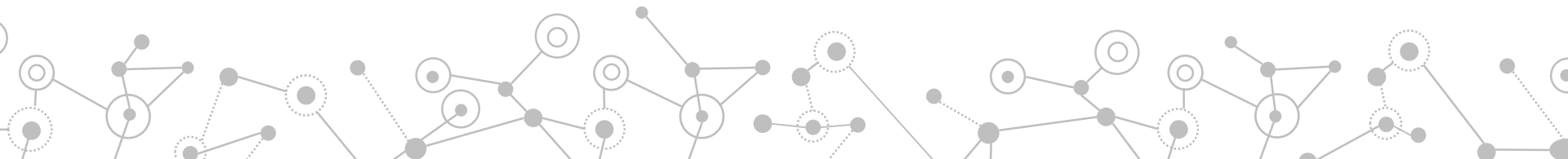


Discussion



ABN framework in short

- Form of graphical modelling that allows ready interpretation of **complex biological systems**
- Outlines **graphically** the process that most likely generated the data → DAG to encode conditional independencies
- **Multivariate** approach → allows to account for non-independence between explanatory variables
- **Holistic view** → allow to identify direct and indirect paths linking two or more variables



Advantages and Limitations



generalization of GLM/GLMM to multiple dimensions

learn the model directly from the data

search can be guided adding extra causal knowledge

suitable for fairly small and *messy* datasets

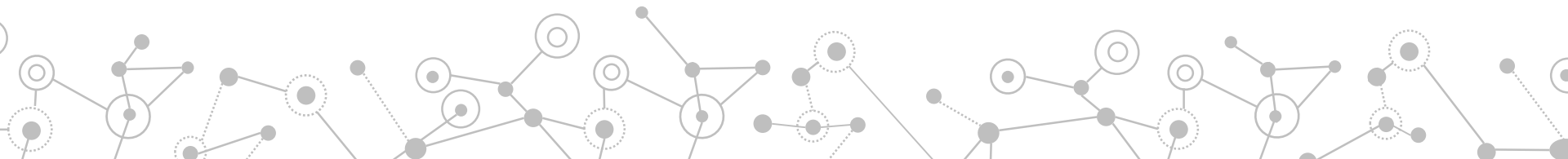


computational demanding (≤ 20 vars for exact search)

learn the model directly from the data

only complete case data & limited types of variables

hard to fit random effects within structure discovery



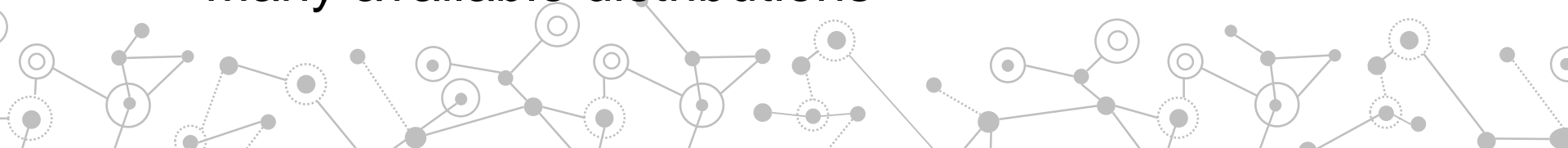
Alternatives to abn

bnlearn

- Only heuristic search
- Many variables
- No Bayesian scoring for structure discovery

Structural equation modelling (eg. *lavaan*)

- Theory-driven DAG
- Many variables
- Many available distributions



Want to know more?

<http://www.r-bayesian-networks.org>

gilles.kratzer@math.uzh.ch (developer & maintainer)

arianna.comin@sva.se (avid user!)

