

# Bayesian modelling

## Bayesian networks

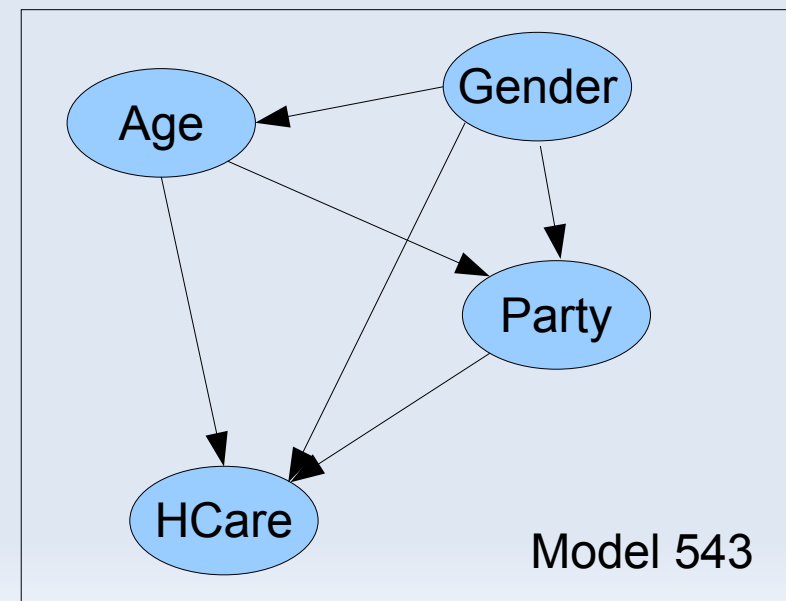
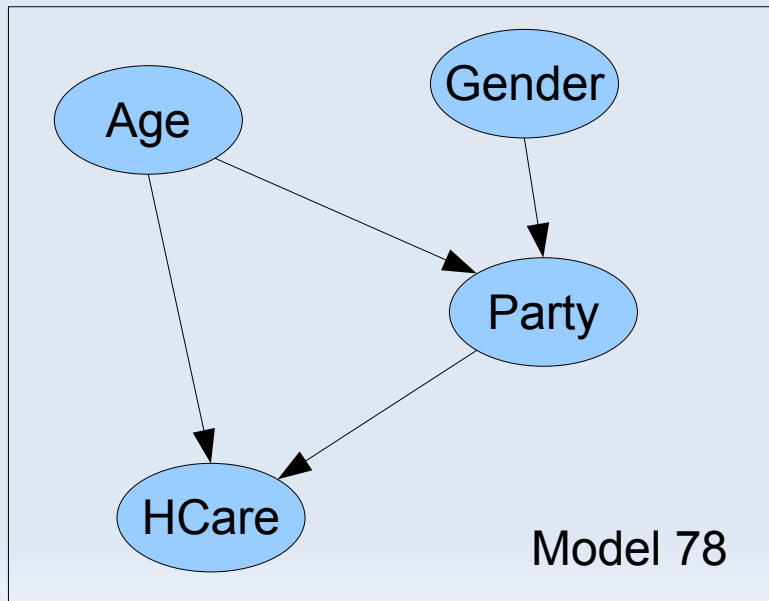
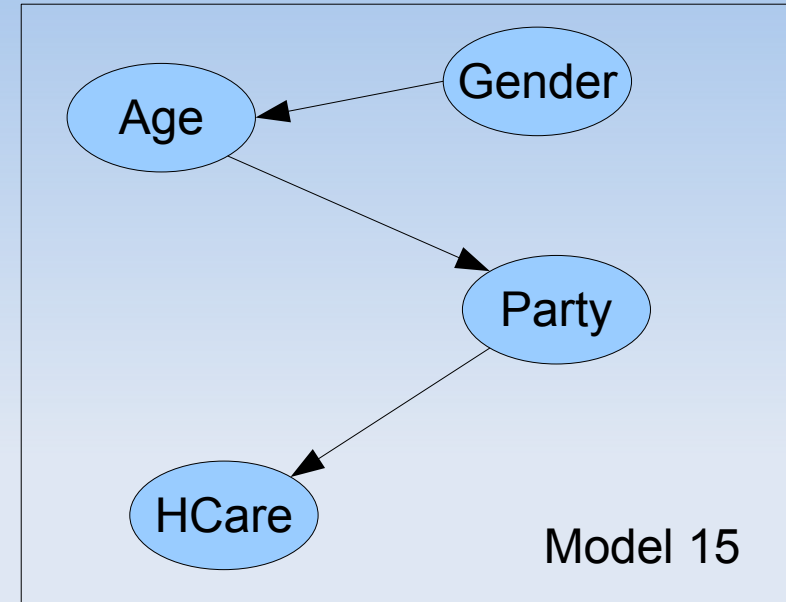
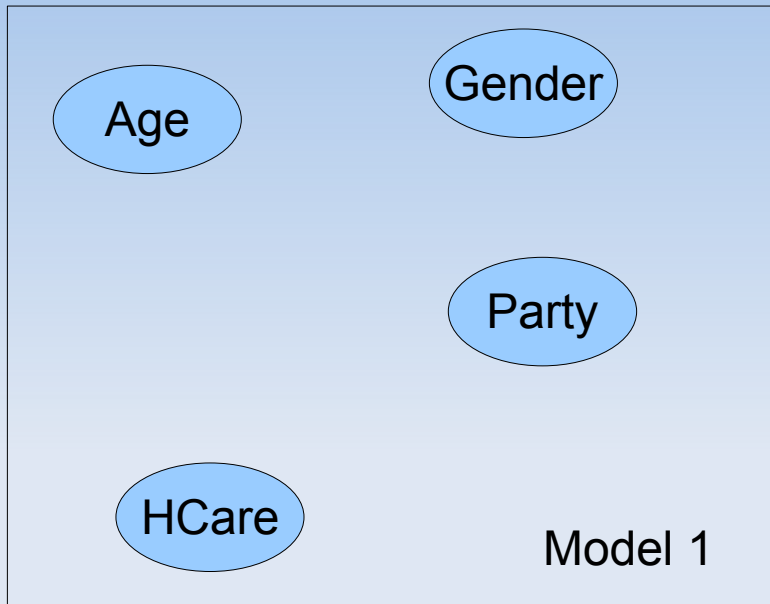
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# Example: dependency models

- Multivariate nominal scale observed data

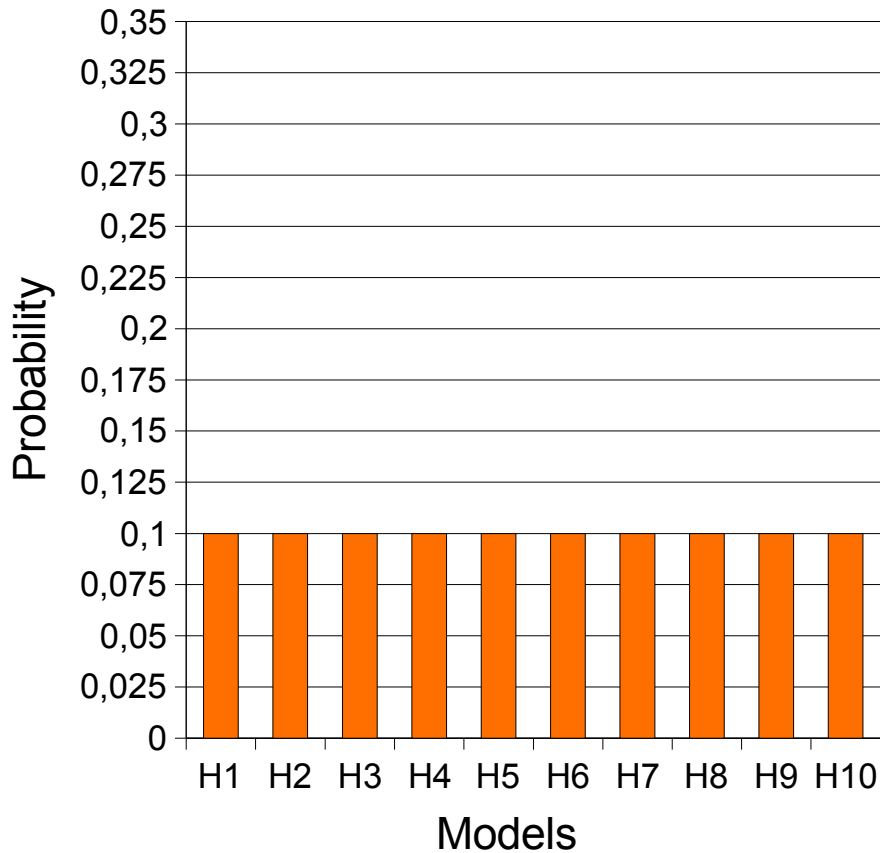
<b>Gender</b>	<b>Age</b>	<b>Party</b>	<b>HealthCare</b>
M	<30	SDP	Public
F	>64	Kok.	Public
F	31-64	Kesk.	Private
M	31-64	Kesk.	Private
F	<30	Kok.	Private
M	>64	SDP	Public
M	>64	SDP	Public

# Models are dependency statements about variables



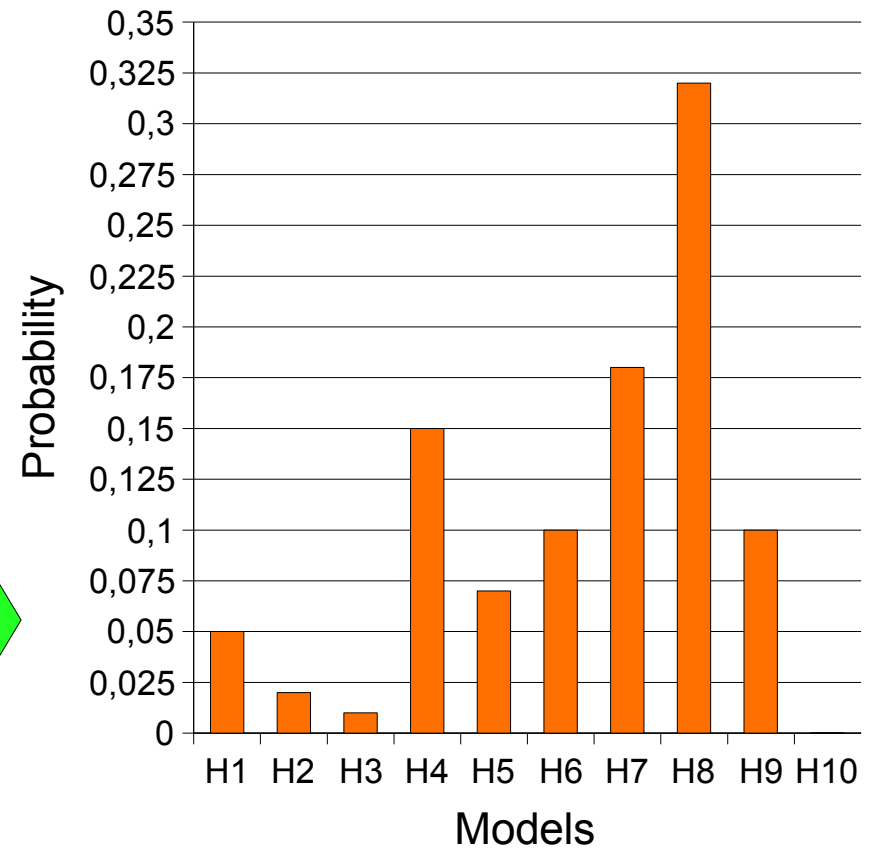
# After observing data, some models appear more probable

## Model probs before data

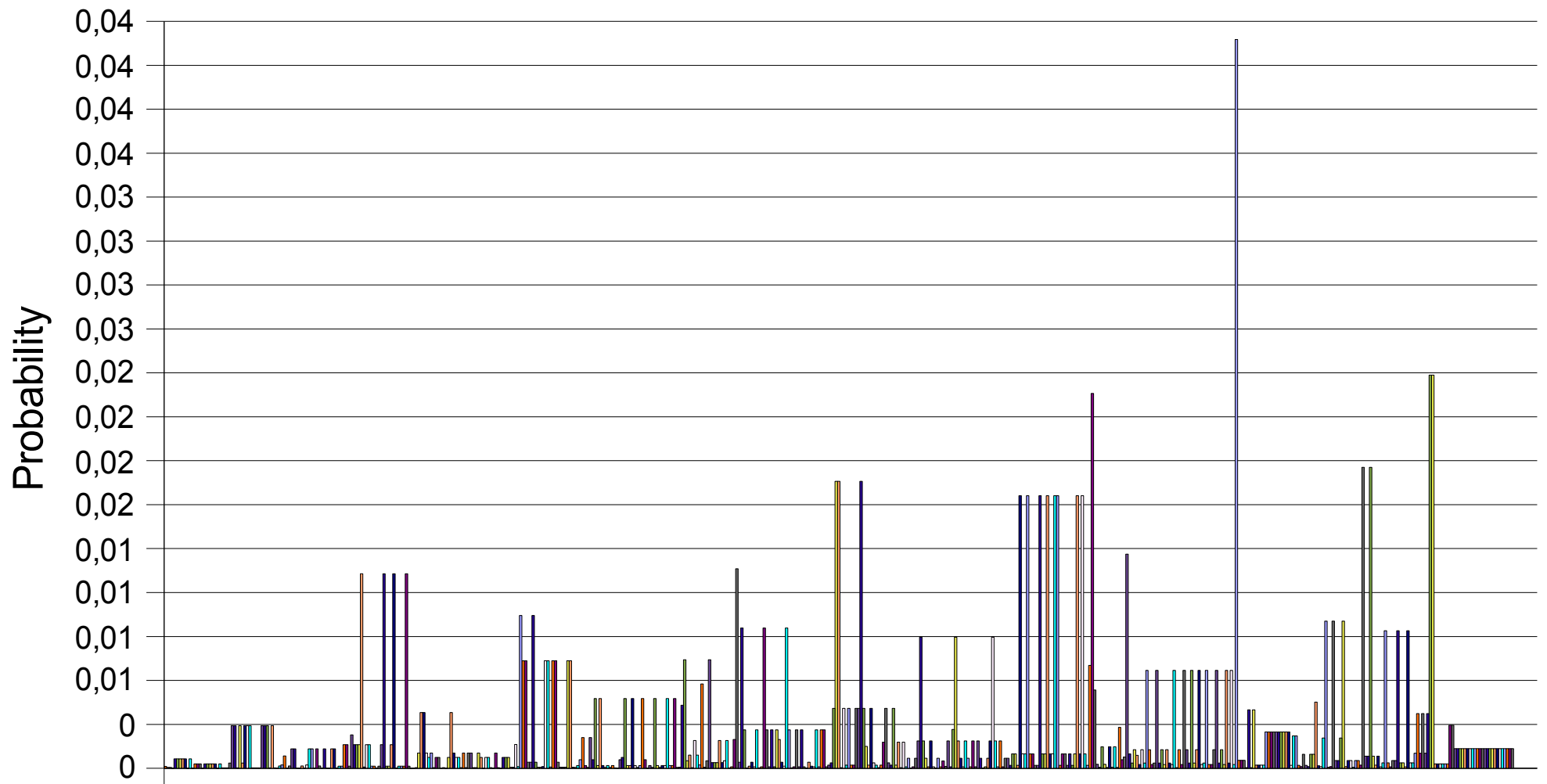


Data

## Model probs after data



# Posterior distribution



All the 543 possible models (graphs)

# B-course tool searches for the most probable model

Gender	Age	Party	HealthCare
M	<30	SDP	Public
F	>64	Kok.	Public
F	31-64	Kesk.	Private
M	31-64	Kesk.	Private
F	<30	Kok.	Private
M	>64	SDP	Public
M	>64	SDP	Public

B-Course searches for the MAP-model

