

Title: What about those surveys! Applying Bayesian Networks to well-designed survey data

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Abstract: Bayesian Networks have been around for some time but are gaining momentum again with the rising interest in machine learning across industries. Many companies, regardless of their focus, use surveys to collect data but often only as an afterthought. A well-designed survey can be extremely useful in providing extra insight to the traditional sensory and consumer data, but a poorly designed one can often add costs and noise! Increasingly, we also want to be able to look at and share results using visualisations, not tables of numbers.

Surveys are here to stay – with mobile technology, companies have better than ever access to a wide range of consumers. But to leverage these gains, and maximise their value, we need to design surveys well. The first part of this workshop will focus on good survey design, from a statistical point of view, and provide some practical tips with things to watch out for.

The second part of the workshop will then focus on Bayesian Networks and how they can be used to display connections found in survey data. We will give a short history and background before using some examples of survey data and demonstrate how to set up a simple analysis using R. The workshop will be at an introductory level, as the focus is on interpretations of the Bayesian Network outputs rather than programming in R (we recognise that many companies will have different software for analysing survey data). Basic R knowledge will be needed to run a provided script, including installation of key packages before the workshop. Other key methods in survey data analysis will be mentioned.

Duration: 3 hours

Audience: Anyone who may need to design or analyse survey data. Anyone who wants to understand how to use Bayesian Networks for survey data.

Background: If participants want to run the R script provided, they will need to bring a laptop with R and several packages installed (a list of packages will be sent ahead of the workshop). Participants are expected to be able to open an R script, run it and perform basic commands.

For those not wanting to run the R script, there will be a live demonstration, and the R coding is not essential. Rather, the code is seen as an additional benefit to underscore what can be done in open-source software.