

How Evidential Impact Influences Probability Judgements

A Preliminary Study

Marta Mangiarulo

Inductive inferences involve two notions: the posterior probability of a hypothesis $Pr(h/e)$ and the impact of new evidence on such hypothesis $Imp(h,e)$. This study aims to explore how people judge these two conceptually related but dissociable elements. Two hypotheses are tested:

1) Probability estimates depend on confirmation relations. Human reasoners are not very accurate at estimating posterior probabilities, but they are very sensitive to impact values and are capable of making sound impact judgements. Therefore, we hypothesize that subjects are influenced by evidential impact when asked to judge the probability of a hypothesis given a piece of evidence.

2) Dissociation between evidential impact and posterior probability may make probability judgements harder; this may lead to an increment in reaction times. We are currently running a first computer-based pilot experiment (N=22) to test these two hypotheses. In this experiment we independently manipulate posteriors and evidential impact to see whether and how their judgements interact.

After a learning phase with figures of different shapes and colors, either all shown at the same time (*all-in-one* condition) or in a sequence (*sequential* condition), participants are presented just the shape of a figure (i.e., the *evidence*) and asked to guess its color (i.e., the *hypothesis*). We expect to find more errors and increased reaction times when posterior probability and evidential impact diverge. Further studies will aim at exploring the neural correlates of both impact and probability assessment.