Learning absence exceptions to general rules

Anne Hsu

University College London, UCL

Nick Chater

University College London, UCL

Abstract: Here we examine how humans learn absence-exceptions to general rules from positive examples alone. For example, consider the generalization that all men wear blue or brown ties for a weekly dinner. An addition-exception of a man who wears a red tie is easily noticed as a violation of the general rule. However, an absence-exception, such as a man who only wears blue ties and never brown ties is much more difficult to notice. Both intuition and statistical theory predict that common absence-exceptions (a man who never wears blue ties among men who mostly wear blue ties) should be more easily spotted than rare absence-exceptions (a man who never wears blue ties among men who rarely wear blue ties). Here we conduct a computer based experiment to show that people are able to learn absence exceptions from positive examples, in line with the predictions of statistical theory.