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BAYESIAN ADJUSTMENT FOR MULTIPLICITY

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Issues of multiplicity in testing are increasingly being encountered in a wide range of disciplines, as the growing complexity of data allows for consideration of a multitude of possible hypotheses (e.g., does gene xyz affect condition abc). Failure to properly adjust for multiplicities is being blamed for the apparently increasing lack of reproducibility in science. The main purpose of this presentation is to review the different types of multiplicities that are encountered, and to discuss the general approaches to dealing with them that are being adopted by Bayesians. Issues that I found surprising will be highlighted, such as the fact that empirical Bayesian approaches to multiplicity adjustment can be seriously flawed.