

Surprise and Evidence in Statistical Model Checking

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Abstract

There is considerable confusion about the role of p-values in statistical model checking. To clarify that point, I introduce the distinction between measures of surprise and measures of evidence which come with different epistemological functions. I argue that p-values, often understood as measures of evidence against a null model, do not count as proper measures of evidence and are closer to measures of surprise. Finally, I sketch how the problem of old evidence may be tackled by acknowledging the epistemic role of surprise indices.

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Subjects: [Specific Sciences: Probability/Statistics](#)

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