

Statistical Methods in Particle Physics

Quiz on chapter 7: Confidence Limits and Intervals

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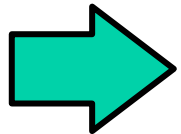
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In Bayesian statistics, an interval in the domain of a posterior probability distribution corresponding to a certain probability is called

1. CLs interval
2. confidence interval
3. confidential interval
4. credible interval

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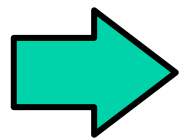
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In frequentist statistics, the fraction of the time that a confidence interval contains the true value of interest is called

1. coverage
2. credibility
3. power
4. likelihood

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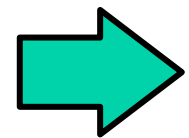
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The Neyman construction is a

1. Bayesian method
2. Frequentist method
3. Neither a Bayesian nor a frequentist method

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1. Bayesian method



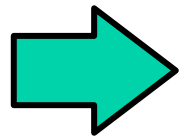
2. Frequentist method

3. Neither a Bayesian nor a frequentist method

You perform one experiment and construct a frequentist confidence interval with a coverage of 68%. The statement that the interval contains the true value with 68% probability is

1. wrong
2. correct
3. ill-defined

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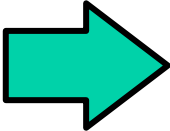


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"Flip-flopping" refers to a practice of giving upper limits or a confidence interval with lower and upper boundaries depending on the observed result. The problem with this approach is that

1. the upper limit might be negative
2. the coverage of the constructed interval is wrong
3. the confidence interval might be an empty set
4. posterior probability might be alternate between positive and negative values

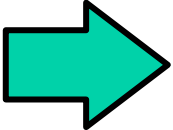
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The Feldman-Cousins method is used to

1. determine the confidence level of a given confidence interval
2. avoid the Neyman construction
3. calculate Bayesian credible intervals efficiently
4. construct confidence intervals in the presence of physical boundaries

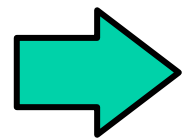
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The CLs method addresses the problem of

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2. negative upper limits
3. incorrect coverage
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