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Another Example of Maximum Likelihood Estimation - Quiz

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Question 1

1.0/1.0 point (graded)

In this example we see a uniform distribution $U[\theta - \frac{1}{2}, \theta + \frac{1}{2}]$. Which of the following is true about the n^{th} order statistic? (Select all that apply)

- [ ] a. θ must be at least $\frac{1}{2}$ below the n^{th} order statistic.
- [x] b. θ can be no more than $\frac{1}{2}$ below the n^{th} order statistic.
- [ ] c. The n^{th} order statistic can be no more than $\frac{1}{2}$ away from the first order statistic.
- [x] d. The n^{th} order statistic can be no more than 1 away from the first order statistic.

✔

Explanation

In this example, the distribution has known length equal to 1. Therefore the 1^{st} and n^{th} order statistics cannot be separated by a length of more than 1. Also, the n^{th} order statistic cannot be more than $\frac{1}{2}$ above θ because $\theta + \frac{1}{2}$ is an upper bound on the distribution.

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Discussion

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