Exercises: Error Detection Intro

Precision and errors

1/1 point (ungraded)

Which of the following errors affects the precision of the best linear unbiased estimator $\underline{\hat{x}}$? *Select all correct answers*

- [x] Using the wrong Q_{yy} ✔
- [ ] An outlier
- [ ] A systematic bias
- [x] A wrong A-matrix ✔

✔

Explanation

We have $Q_{\hat{x}\hat{x}} = (A^T Q_{yy}^{-1} A)^{-1}$, hence there is only a dependency on A and Q_{yy}.

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✔ Correct (1/1 point)

Large residuals

2/2 points (ungraded)

Large residuals are always associated with errors other than random errors.

false ✔ **Answer:** false

Explanation
If the precision of the observations is very poor, you'd also expect large residuals. This stresses that judging the whether residuals are "too large" should take into account the precision. We will see that in the next unit.

Consider the linear trend model with initial height and constant velocity as unknown parameters. A constant systematic bias affecting all observations equally does not affect the residuals.

true ✔ **Answer:** true

Explanation
See the example in the video.

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✔ Correct (2/2 points)