ADEPT METHODOLOGY

A.D.E.P.T.

A
D
E
P
T

ANALOGY

DEPT

ANALOGY DIAGRAM

E

P

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ANALOGY DIAGRAM EXAMPLE

PT

ANALOGY DIAGRAM EXAMPLE

PLAIN ENGLISH

T

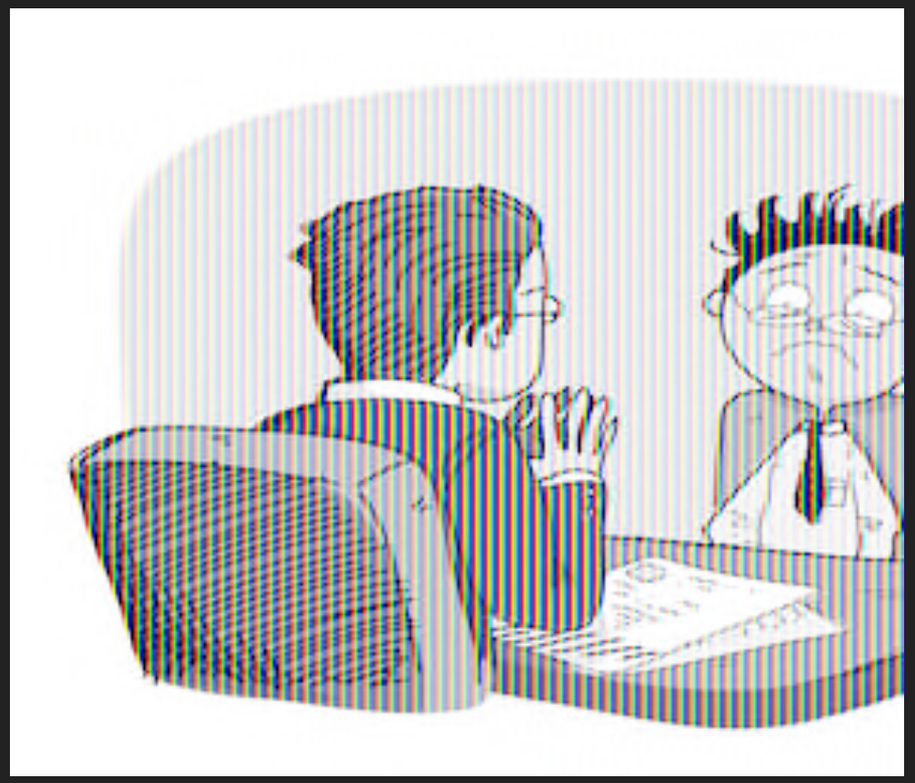
ANALOGY
DIAGRAM
EXAMPLE
PLAIN ENGLISH
TECHNICAL

USING A.D.E.P.T. FOR

BAYESIAN STATISTICS

ANALOGY

DEPT



ANALOGY

AN INTERVIEW

ANALOGY

DEPT

ANALOGY DIAGRAM

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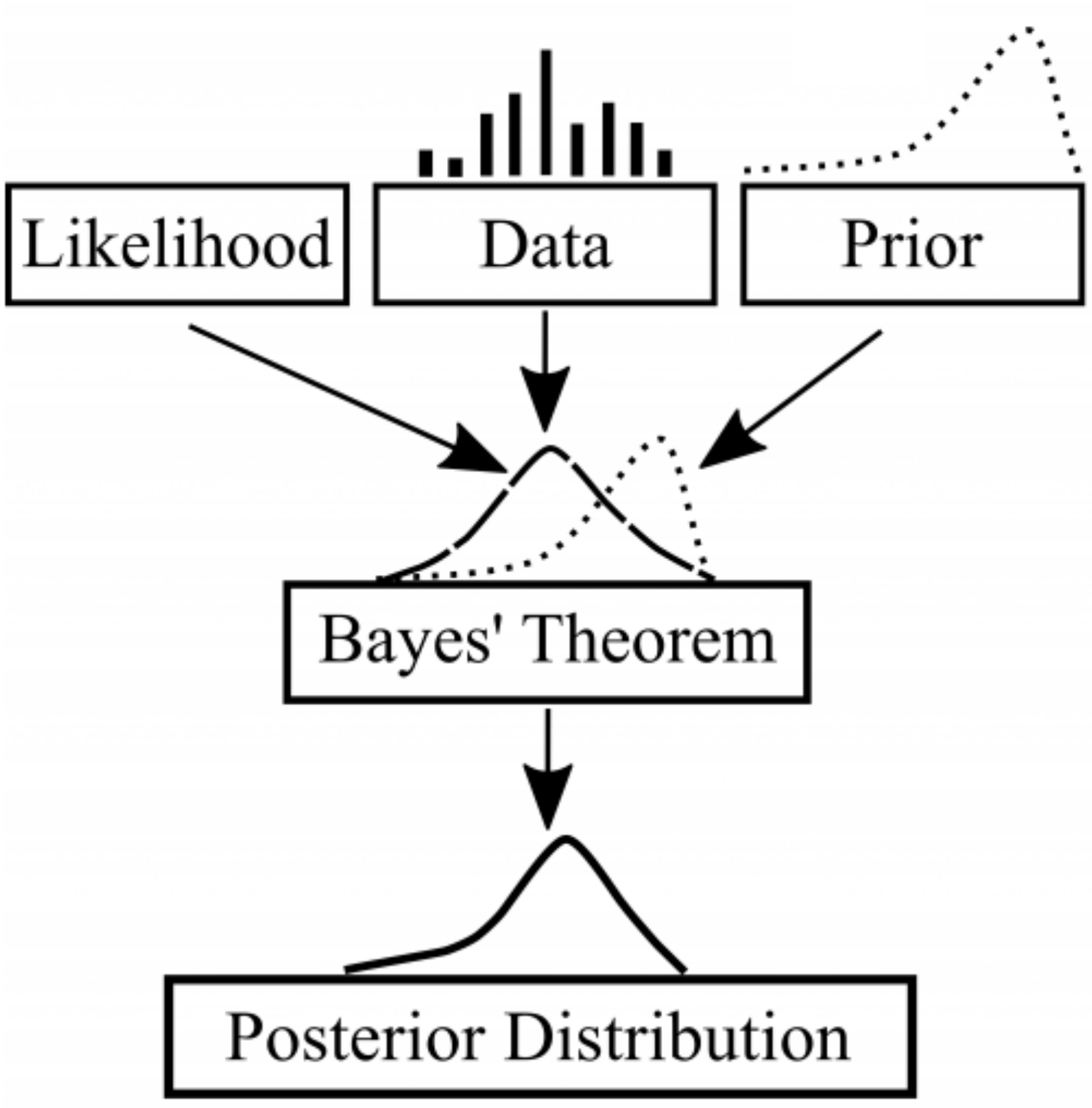
Likelihood
Data
Prior
Bayes' Theorem
Posterior Distribution

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ANALOGY DIAGRAM EXAMPLE

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A REAL-LIFE EXAMPLE

- 1% of women have breast cancer (and therefore 99% of women do not)
- 80% of mammograms detect breast cancer when it is there (and therefore 20% miss it)
- 9.6% mammograms detect breast cancer when it is **not** there (and therefore 90.4% correctly return a negative result)

	Cancer (1%)	No Cancer (99%)
Testing Positive	80%	9.6%
Testing Negative	20%	90.4%

Now suppose we get a **positive** test result.
What are the chances that the test results are correct?

https://betterexplained.com/articles/an-intuitive-and-short-explanation-of-bayes-theorem/

	Cancer (1%)	No Cancer (99%)
Testing Positive	True Positive (1% x 80% = 0.008)	False Positive (99% x 9.6% = 0.095)
Testing Negative	False Negative (1% x 20% = 0.002)	True Negative (99% x 90.4% =0.894)

	Cancer (1%)	No Cancer (99%)
Testing Positive	True Positive (1% x 80% = 0.008)	False Positive (99% x 9.6% = 0.095)
Testing Negative	False Negative (1% x 20% = 0.002)	True Negative (99% x 90.4% =0.894)

$$P(\text{Cancer} \mid \text{Test is Positive}) = \frac{0.008}{(0.008 + 0.0954)} = 0.773$$

ANALOGY DIAGRAM EXAMPLE

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BAYESIAN STATISTICS IN A NUTSHELL

- When we add prior knowledge to existing data, our outcome changes
- Also, our inferences stand a chance to improve

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BAYES THEOREM

$$P(A|B) = \frac{P(B|A) \times P(A)}{P(B)}$$

BAYES THEOREM

$$P(A|B) = \frac{P(B|A) \times P(A)}{P(B)}$$

Which is equivalent to:

$$P(A|B) = \frac{P(B|A)P(A)}{\sum_i P(B|A_i)P(A_i)}$$

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TECHNICAL

BLURRY-TO-SHARP APPROACH

THIS WAS POSSIBLE THANKS TO:

- https://betterexplained.com/articles/adept-method/