data-ppf.github.io feb 26 2019

lecture 6 of 14: data gets real: mathematical baptism

chris wiggins + matt jones, Columbia

student observations

capabilities

- Bayes

capabilities

- Bayes
- art

capabilities

- Bayes
- art
- cookbook

power

- eugenics

power

- eugenics
- WWII, institutions (following GG)

historical context

historical context

- academic baptism

historical context

- academic baptism
- ghost of Bayes past, present, future

guided readings

secondary readings

CW on Gerd Gigerenzer

F

the scientist

- “Eugenics was indeed Fisher’s driving motivation”

the hypothesis test

F

the scientist

- “Eugenics was indeed Fisher’s driving motivation”
- Uncertainty as probability (as opposed to enumeration of cases)

the hypothesis test

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the hypothesis test

- “cannot be reduced to a mechanical process”

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the scientist

- "Eugenics was indeed Fisher's driving motivation"
- Uncertainty as probability (as opposed to enumeration of cases)

the hypothesis test

- "cannot be reduced to a mechanical process"
- "nuances. . . not picked up by Fisher's readers"

F

the scientist

- "Eugenics was indeed Fisher's driving motivation"
- Uncertainty as probability (as opposed to enumeration of cases)

the hypothesis test

- "cannot be reduced to a mechanical process"
- "nuances. . . not picked up by Fisher's readers"
- never looks at $p(D|M)$, "statistician's imagination"

N+P

the mathematicians

- N loved rigor

hybridization

Fisher's theory of significance testing, which was historically first, was merged with concepts from the Neyman-Pearson theory and taught as 'statistics' per se. We call this compromise the "hybrid theory" of statistical inference, and it goes without saying that neither Fisher nor Neyman and Pearson would have looked with favor on this offspring of their forced marriage.

N+P

the mathematicians

- N loved rigor
- "errors of the second kind"

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N+P

the mathematicians

- N loved rigor
- "errors of the second kind"
- RAF fight with KP

hybridization

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Bayesians (not in the room yet)

- Sci-Am piece

Bayesians (not in the room yet)

- Sci-Am piece
- Bayesian primer

professionals

- academics

professionals

- academics
- X-statistics

professionals

- academics
- X-statistics
- consultants

professionals

- academics
- X-statistics
- consultants
- expert witnesses

professionals

- academics
- X-statistics
- consultants
- expert witnesses
- math envy from RAF

professionals

- academics
- X-statistics
- consultants
- expert witnesses
- math envy from RAF
- science envy from KP “grammar of science”

primary readings

Note: these 3 readings are doing a *lot* of work, summarizing in 3 letters 50 years of, as one student put it:

> *active challenging of ideas between mathematicians and statisticians.*

Also:

> *The readings for this week were very dense.*
>
> *All in all, the readings from this week felt a bit dense and hard to follow,*
>
> *Oh man, very dense reading*

MJ on RAF's book

- F vs PN (and all bayesians): who?

MJ on RAF's book

- F vs PN (and all bayesians): who?
- rhetoric and posturing: why? why can't i just math it?

MJ on RAF's book

- F vs PN (and all bayesians): who?
- rhetoric and posturing: why? why can't i just math it?
- Bayes rule, e.g., in Bayes field of application

CW on F

1. CW on F 1955 RSSB v17#1

CW on F

1. CW on F 1955 RSSB v17#1
2. CW on P 1955 RSSB v17#2

CW on F

1. CW on F 1955 RSSB v17#1
2. CW on P 1955 RSSB v17#2
3. CW on N 1956 RSSB v18#2

return to secondary readings: GG section 3.7

institutions

- “Statistical Laboratories”:

institutions

- "Statistical Laboratories":
  - Galton, KP, ... Neyman

institutions

- "Statistical Laboratories":
  - Galton, KP, ... Neyman
  - Iowa

institutions

- "Statistical Laboratories":
  - Galton, KP, ... Neyman
  - Iowa
- "Statistics goes to war"

power and principles

power

how did this capability rearrange power? who can now do what, from what, to whom?

- contemporary debates:

power

how did this capability rearrange power? who can now do what, from what, to whom?

- contemporary debates:
  - NIH elaboration

power

how did this capability rearrange power? who can now do what, from what, to whom?

- contemporary debates:
  - NIH elaboration
  - ASA

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- contemporary debates:
  - NIH elaboration
  - ASA
  - Gigerenzer 2018

power

how did this capability rearrange power? who can now do what, from what, to whom?

- contemporary debates:
  - NIH elaboration
  - ASA
  - Gigerenzer 2018
  - XKCD

principles

role of rights, harms, justice?

foreshadowing data for Thursday