

Advice
on
problem-
solving

$$P = (Q, C) \rightarrow (\theta, J, B)$$

STAT 206
14 Jan 21

identify principal

JD office
hours ①

question(s)

② enumerate or T/F

propose how all contextual info
(B)

③ identify principal unknown(s)

A

④ identify available data

resources

⑤

use available

relevant info to specify $p(\theta | B)$
(prior dist.)

⑥ use available relevant info to
specify $p(D | \theta B)$ (sampling
dist.)

⑦ convert $p(D|\theta B)$ to

$$L(\theta | D B) = c \cdot p(D | \theta B)$$

Likelihood function

$(c > 0)$

think of

$p(D | \theta B)$ or

f'n. of θ for fixed D

⑧ apply Bayes' theorem (& its corollaries)

$$p(\theta | D B) = c p(\theta | B) L(\theta | D B)$$

Inference

$(c > 0)$

$$p(D^* | D B) = \dots$$

prediction

⑨ if decision necessary, use available relevant info to specify

$(A|B)$ & $U(a, \theta | B)$

↑
action
space

↑
utility fn

& compute
optimal
actions
...

ⓐ on **Quiz 1**

S & E are opposites (dichotomy)

$(\text{not } S) = E$ and $(\text{not } E) = S$, so

$P(S B)$
$P(E B)$
(2)

$P_{st|B}$
must be the prior
odds ratio is
 $1 - P_{st|B}$

favor of S over E (given B),

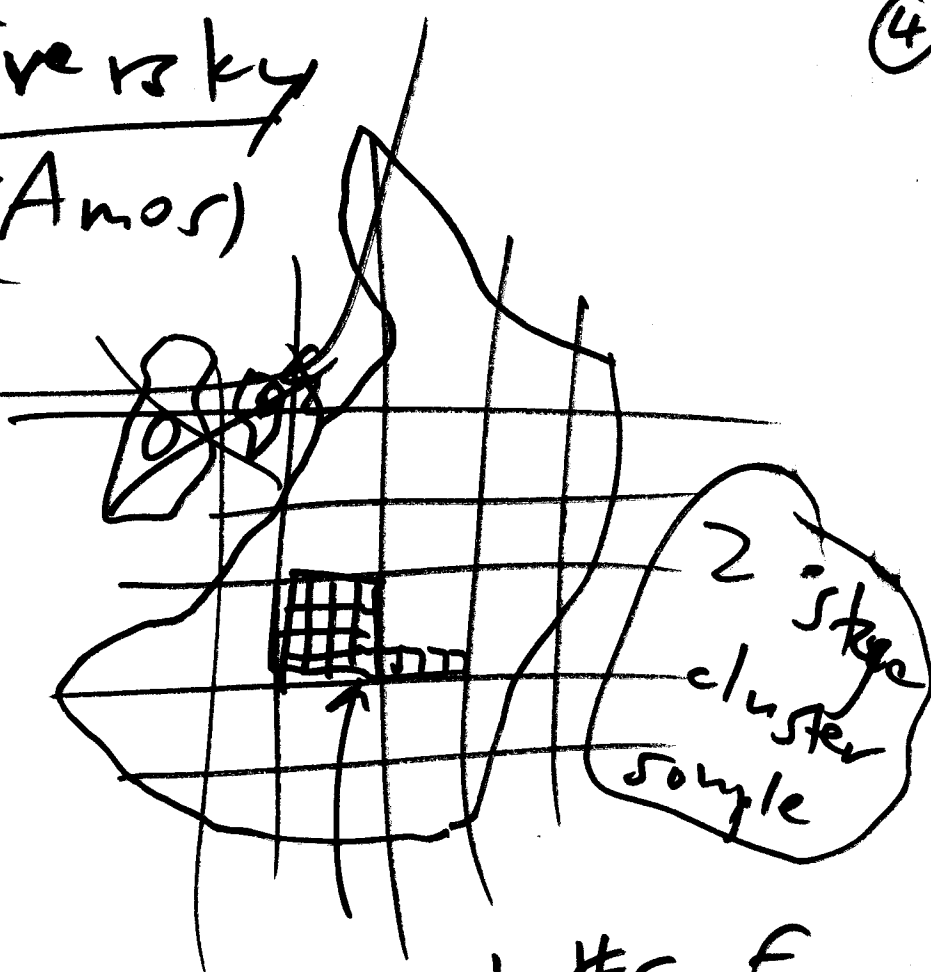
because here data $D = (\text{happened person is } S)$

& S makes no appearance
in (2)

Kahneman & Tversky
(Daniel) (Amos)

(4)

method 2
PPS =
probability
proportional



to size sampling \oplus equal #s of
people sampled
in sampled cells

method 2 choose cells at random
(equal ~~prob.~~ ~~prob.~~) \oplus sample no. of
people in abundant cells (PS)