

$B = \{B_1, \dots, B_b\}$ P_i T/F prop.

STAT 206
21 Jun 21

~~THT 1 (T/F) (T/F)~~

DD 0A

$P(A|B) =$

T/F prop.

suppose $b=6$

and ~~B_2~~ B_2 is False

①

$P(A|B) = P(A|B_1, B_2, B_3, \dots,$

$P(A|B_1, B_2, B_3 \dots B_6)$

T/F status of

$(B_1 \text{ and } B_2 \text{ and } B_3 \text{ and } \dots B_6)$
? F ? .. ?

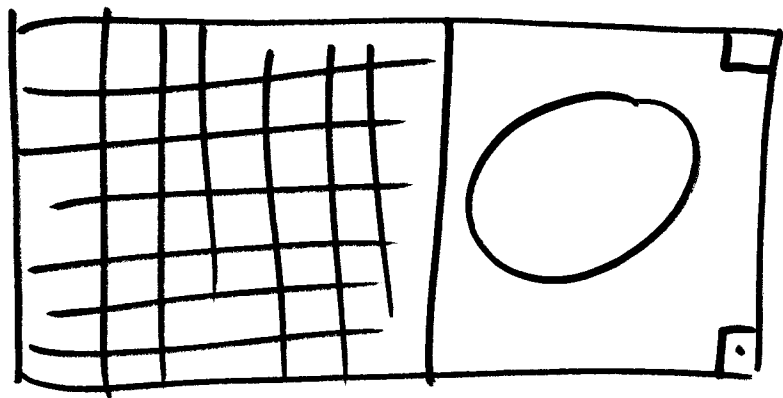
? * 0 * ? * .. * ?

$\{1, 0\} = F(0)$

prop. ↓ ↓

$P(A|C) = \begin{cases} \frac{P(A \text{ and } C)}{P(C)} & \text{if } P(C) > 0 \\ \text{undefined} & P(C) = 0 \end{cases}$

if B contains a false statement ⁽²⁾
 $P(A|B)$ is undefined ^{so}
 (A)(H) is T



with biased
 roulette wheel/
 spinning process
 of unknown bias

$$P_{PF}(\text{red} | B) = \frac{18}{38}$$

\uparrow
 $B = \{B_i\}$ fair

$$P_{PF}(\text{red} | B^*)$$

\approx undefined
 B^* contains no

into about fair ones

with con only
 gives results:
 If A then C

$$P_{PF}(\text{red} | B) = ? \text{ if } B_i \text{ is false}$$

$=$ undefined (I)(H)

$$P_{PF}(A|B) = \frac{\# \text{ EOs favorable to A}}{\text{total } \# \text{ of EOs}} \quad (3)$$

E_0 = possible value of experimental outcome, enumerated in such a way that all E_0 s are equally likely

driven by B

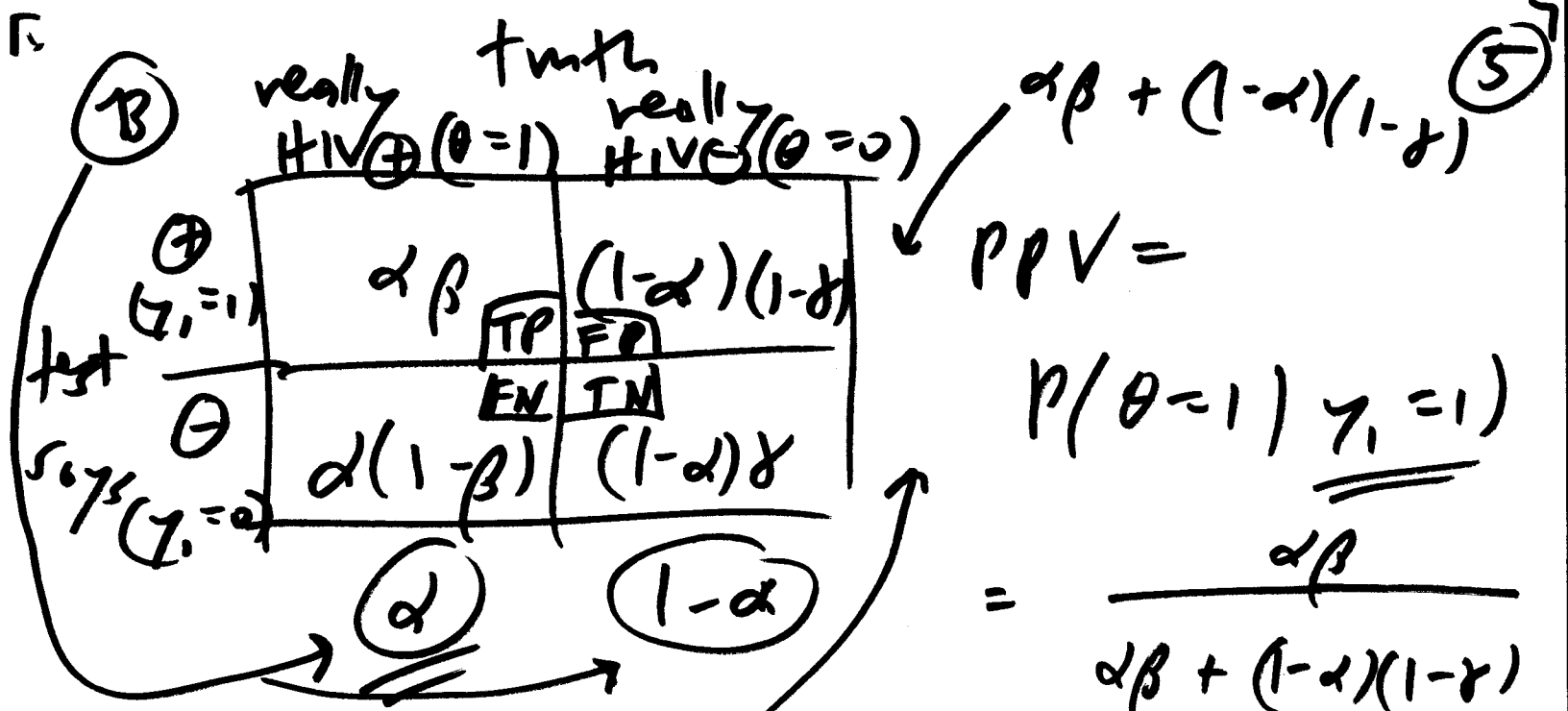
but what if # possible outcomes is infinite? deep trouble for PF, but
(if do be right) no problem for K

if PF okay, can always create equivalent K story

$P_B(A|B) =$ numerical measure of strength of evidence, ④
 \uparrow \bar{F}
T/F $\{B_1, \dots, B_b\} \leftarrow C$ given B ,
prop that A is T

$P_k(A) =$ long-run relative frequency with
 \uparrow ~~which~~ A occurs in
set which

IID repetitions of a process in which A has to either occur or not occur on each repetition



$\alpha(1-\beta) + (1-\alpha)\delta$

$NPV = P(\theta=0 | y_1=0) = \frac{(1-\alpha)\delta}{\alpha(1-\beta) + (1-\alpha)\delta}$

$2(A)(i) = \alpha\beta \checkmark$

$P(\theta=1 \text{ and } y_1=1) = \frac{A}{B} = \alpha \cdot \underbrace{P(y_1=1 | \theta=1)}_{\beta}$

~~$P(y_1=1) \cdot P(\theta=1 | y_1=1)$~~

$P(A \text{ and } B) = P(A) \cdot P(B|A)$

$= P(B) \cdot P(A|B)$

NPV: $[0, 1]$
 PPV: $[0, 1] \rightarrow [0, 1]$

