

Discussion section 3

problem 5:

ANSW
30 Jun
2016

R-41

①

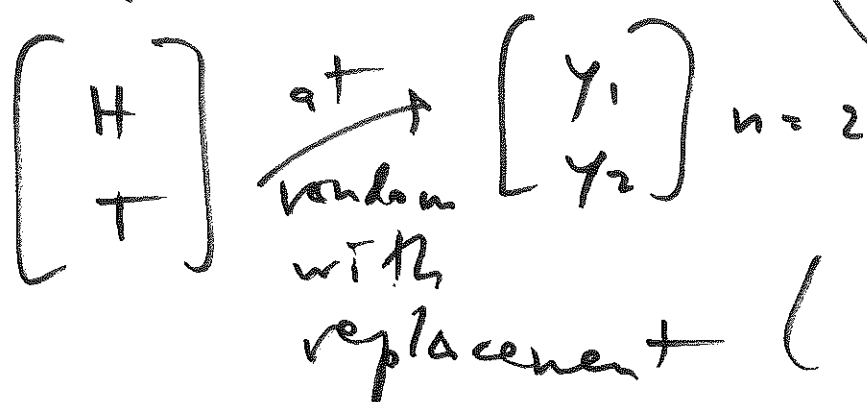
(a) Fair coin tossed twice:

neither H nor T

$$P(\text{exactly 1 H}) = ?$$

favored over the other;
each toss logically independent of the other

ELM? yes



other tosses
independent identically distributed (IID) sampling

- HH x
- HT ✓
- TH ✓
- TT x

if coin fair, ELM? yes

so 50% is true

$$P(\text{exactly 1 H}) = \frac{2}{4} = 50\%$$

new Q : ~~is~~ True, false or meaningless: If a fair coin is tossed twice, the chance of getting exactly 1 H is 50%.

A: Meaningless, because probabilities can't be negative

5(b) P-42

PLAN AREA

die 1: 1 2 3 4 5 6
 2

I claim

possible sums

ECM applies to this list of possibilities; therefore

$$P(\text{getting a 3}) = \frac{1}{11}$$

$$\& P(\text{getting a 7}) = \frac{1}{11}$$

but this is wrong; ECM not

- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

16 here

die 1

die 2

sum

	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

like Punnett square

cross-tabulation of

possibilities for die 1 versus die 2

ELM for these $6 \cdot 6 = 36$ possibilities?

yes

$$P(\text{getting a 3}) = \frac{2}{36} = \frac{1}{18} = 5.6\%$$

$$P(\text{getting a 7}) = \frac{6}{36} = \frac{1}{6} = 16.7\%$$

now Q_1 which is better for you, or are they the same?

(A) you win if die 1 = 5 (4)

(B) you win if die 1 = 5 (or)

die 2 = 6

A₁: (B) better: 2 ways to win vs. 1

disc.

(C) you win if die 1 = 5

(D) you win if die 1 = 5 and

die 2 = 6

A₂: (C) is better - only 1 thing has to go right, not both of 2 things

Disc. Sec. 2

(A-32) #7

both design 1 & design 2 are valid because both have no biases hidden in them

but design 2 is likely to be ^⑤
more accurate because it holds
the entire deer constant in the
comparison of front & back legs

design ② is like repeated measures
because entire deer held constant

design ① is like completely
randomized design = randomized
controlled trial (experiment) because

they created 2 separate groups
at random (like ① & ③ group)