

Agenda

leftovers: ch 20 & RevEx 2, 9

Ch 2 / discussion

B3

A 1, 4, 8

C3

Ch 20 C4 p370

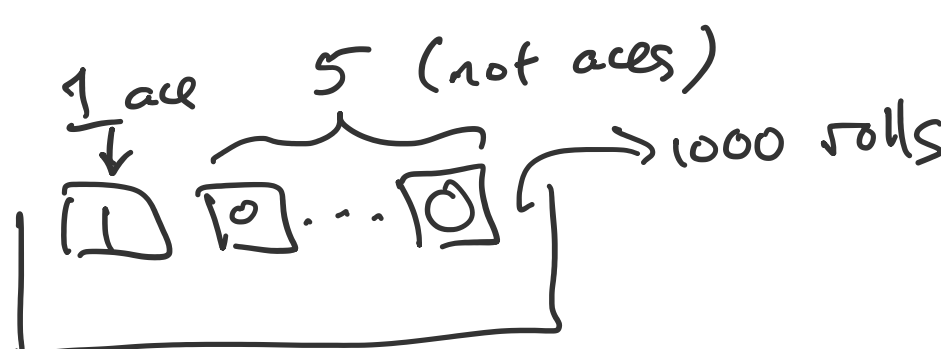
[0 1] fraction of 0's = $\frac{1}{2}$
= fraction of 1's

$$SD(\text{all 3 boxes}) = (1-0) \sqrt{(\frac{1}{2})(\frac{1}{2})} \quad (\text{shortcut ch 17})$$

$$= \frac{1}{2}$$

$$SE(\text{draws any of these boxes}) = SD(\text{box}) \sqrt{100}$$

RevEx 2. p371
Rev 2, 7, 9 Ch 20
set up box!



$$ave(\text{box}) = \frac{1}{6}$$

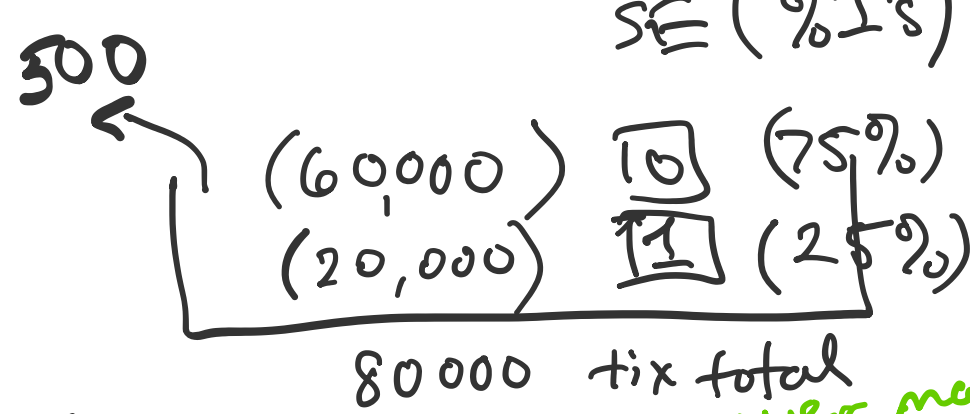
$$SD(\text{box}) = (1-0) \sqrt{\frac{1}{6} \frac{5}{6}}$$

$$= \frac{\sqrt{5}}{6}$$

expected percent (1's) = percent 1's in box
 $= \frac{1}{6} \approx 16.7\%$

$$SE(\%1's) = \frac{SD(\text{box}) \sqrt{1000} \cdot 100\%}{1000}$$

RevEx 7. p372



expected (%1's in draws) = 25%

the percent 1's in draws will be exactly 25%

1 single sample

Expected (%1's) is 25% ±

%1's in draws will be about 25% ± 2%

$$SD(\text{box}) = (1-0) \sqrt{(.25)(.75)} \approx .433$$

$$SE(\%1's) = \frac{SD(\text{box}) \sqrt{500} \cdot 100\%}{500} \approx 1.94\%$$

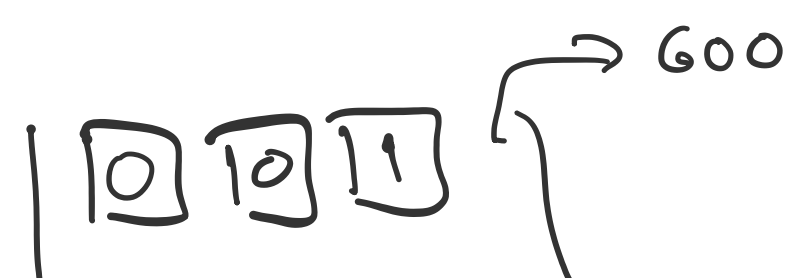
SE(sum) vs SE(%1's)

↑ if question is about total sum of draws
= total count of 1's drawn

$$\frac{127}{500} = 25.4\%$$

(e) T
(f) F

Ch 20 #9 p373



$$ave(\text{box}) = \frac{1}{3}$$

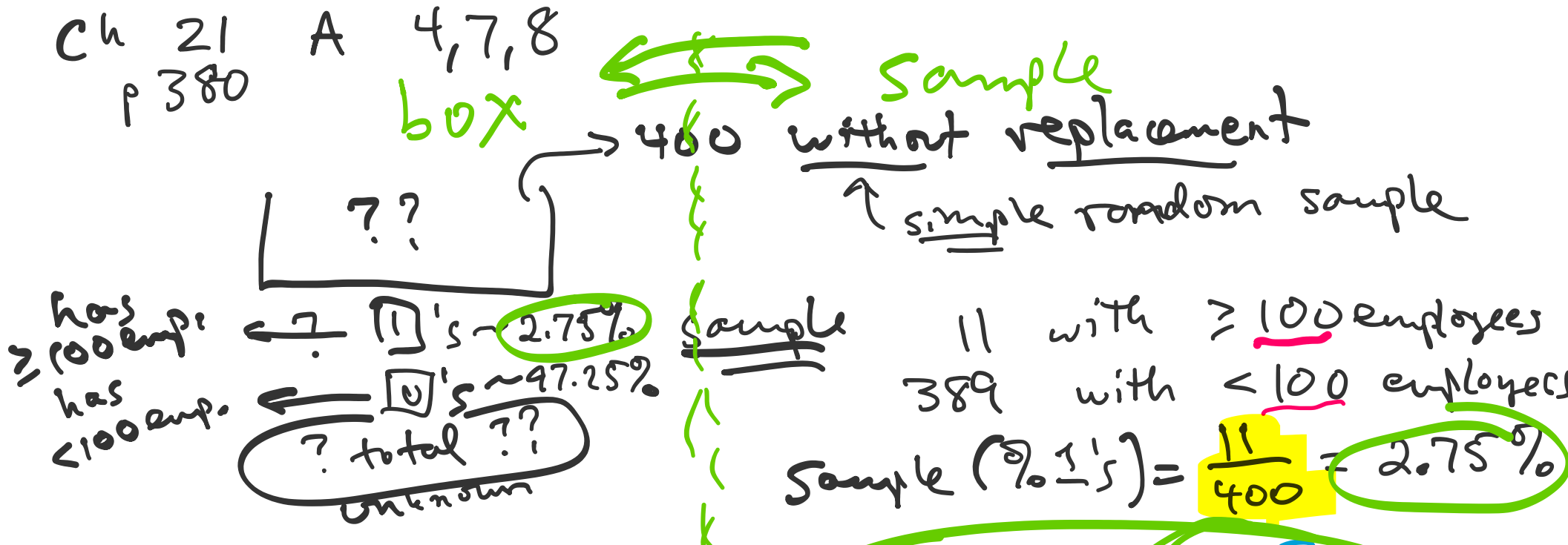
$$SD(\text{box}) = (1-0) \sqrt{\frac{1}{3} \cdot \frac{2}{3}}$$

$$\text{expected (sum)} = \frac{1}{3} \cdot 600 = 200$$

$$SE(\text{sum}) = SD(\text{box}) \sqrt{600} \approx 11.55$$

(ch 17 review)

Ch 21 A 4, 7, 8 p380



Est. %1's in box ~ 2.75% ± 1.82%

$$SE(\%1's) = \frac{SD(\text{box}) \sqrt{400} \cdot 100\%}{400} = 1.82\%$$

$$SD(\text{box}) = (1-0) \sqrt{(.0275)(.9725)}$$

best estimate

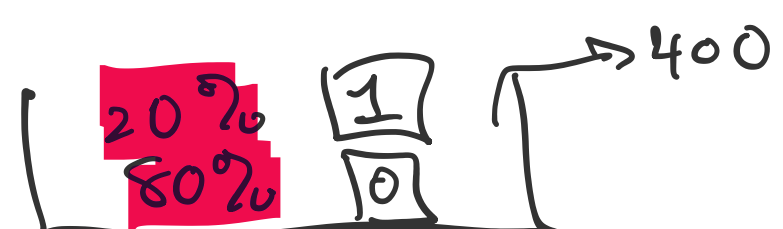
what if

$$\sqrt{(.03)(.97)} \approx .17$$

$$\sqrt{(.02)(.98)} \approx .14$$

p378 bootstrap method

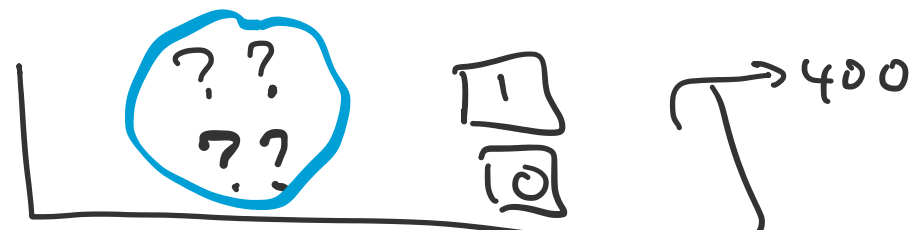
A7 p380



$$SD(\text{box}) = (1-0) \sqrt{(.20)(.80)} = .4$$

$$SE(\%1's) = \frac{SD(\text{box}) \sqrt{400} \cdot 100\%}{400} = 2\%$$

A8



Sample 1: 72 1's

$$\frac{72}{400} = 18\%$$

Sample 2: 84 1's

$$= 21\%$$

Sample 3: 98 1's

$$= 24.5\%$$

est for %1's in box

$$(a) \rightarrow 18\% \pm \frac{\sqrt{(.18)(.82)} \cdot \sqrt{400} \cdot 100\%}{400} = 1.92\%$$

$$(b) \rightarrow 21\% \pm \frac{\sqrt{(.21)(.79)} \cdot \sqrt{400} \cdot 100\%}{400} = 2.03\%$$

$$(c) \rightarrow 24.5\% \pm \frac{\sqrt{(.245)(.755)} \cdot \sqrt{400} \cdot 100\%}{400} = 2.15\%$$

3 different bootstrap estimates

next time

B3

p383

C3

cont'd