6 pm Discussion section 6 | AMS 7 5 Nov 09

#1 R-75 $\frac{28.1 - 26.0}{26.0} = 0.081$ so

mean wt. 5 yrs ago was 8% lighter than today; especially since this might be part of a trend, this is large in practical terms.

inf. sum.

unknown pop quantity of interest	μ = pop'l mean wt. of all others
estimate of μ	$\bar{y} = 26.0$ kg
give & take for $\bar{y}$ as est. of μ	$\hat{SE}(\bar{y}) = 0.6$ kg
95% interval for μ	$\bar{y} \pm 2.02\,\hat{SE} = (26.0 \pm 1.2)$ kg

pop: all sea otters who live @ Elkhorn Slough? (now)

sample: the observed sea otters

imag. data: possible $\bar{y}$'s

weight (actual): $N = 600$

like SRS = IID

weight: $n = 42$

mean $\bar{y} = 26.0$

SD $s = 4.0$

mean $\mu = ?$

SD $\sigma = ?$

hyp. IID

pop. hist: ?

sample hist

$n = 42$

mean $\bar{y} = ?$

(ex. 25.6)

(26.0, 25.6, …) $M = \infty$

long run mean: ① EV of $\bar{y} = \mu$

long run SD: ② est. $\hat{SE}$ of $\bar{y} \doteq 0.6$ kg

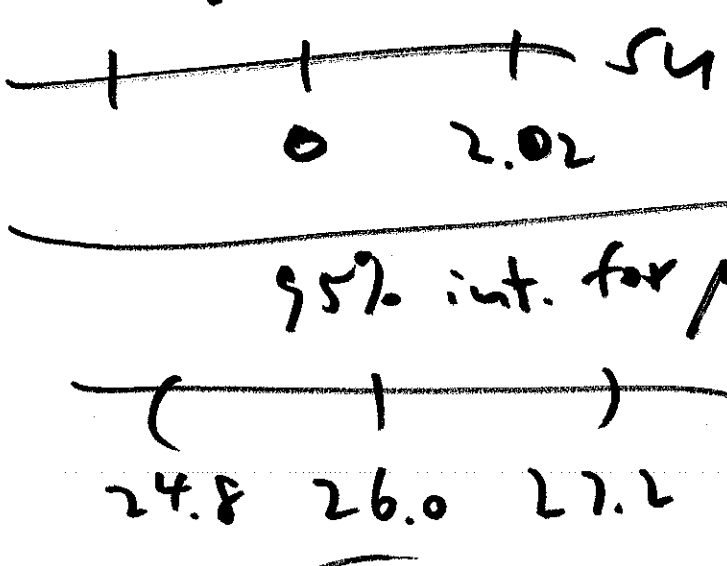
long run hist ③

① $E_{IID}(\bar{y}) = \mu$

② $\hat{SE}_{IID}(\bar{y}) = \frac{s}{\sqrt{n}} = \frac{4.0 \text{ kg}}{\sqrt{42}} \doteq 0.6$ kg

$\hat{SE}$ 0.6kJ t_{41} curve

long run list of $\bar{y}$, accounting for uncertainty in σ



df	$t^{.95}$
40	2.021
41	2.02
45	2.014

value (is not) in 95% interval,

so the difference (new - old) (is)

statistically = (is) large in statistical

terms = (is not) easy to attribute

to unlucky random sampling

= (is) (probably) real

(a) T (b) This statement is (4)
about (pop) part of diagram
but it's not about pop mean μ,
it's about the otters in the
pop. (one by one). If I pick
an otter at random from pop
I expect his/her wt. will
be around μ (around 26.0 kg)
around σ (around 4.0 kg), so
around 95% of otters should
have weights in interval
$26 \pm 2(4)$ so this is F

(5)

(c) this is about sample dataset; others by
& one-by-one, not sample
mean

so (c) is F again (for same reason as (b)); to correct
(c): 26.0 ± (2)(0.6) → 95% of others
(4 written over 6)

(d) (T) this is just the CI we got.

(e) T: see CI diagram earlier: 28.1 is not in CI so (yes) stat sig