Corrections

The copies you can get from my web pages have these corrections made.

To notes distributed in lectures

Page 1. $5/20 = 0.25$, not 0.2.

Page 4. In (a) it should be $k = 0, ..., n$, not $1, ..., n$.

Page 4. In (b) there is a $E(X)$ which should be printed as $\mathbb{E}(X)$.

Page 11. In the displayed equation at the bottom of the page, it should be $e^{-\lambda}$, not $e^{-n\lambda}$, within the first product.

Page 13. In the first paragraph of this page, there twice appears $(\theta - \hat{\theta}^2)$ which should be $(\theta - \hat{\theta})^2$.

Page 15. In examples (a), (b) and (c) it should start $X_1, ...X_n$, not $X_1, ..., X_k$.

Page 15. In (c) it should say "In Example 2.3 (c)", not "In Example 2.3 (b)".

Page 27. Add a subscript to f in the definition of likelihood for composite hypothesis, i.e., $f_X(x \mid \theta)$.

Page 28. In line 2, it should be $\mu_1 > \mu_0$, not $> \mu_2$.

Page 28. In the penultimate line of the second paragraph it should be $\mathbb{P}(\bar{X} > c \mid H_0)$, not $\mathbb{P}(\bar{x} > c \mid H_0)$.

Page 28. Delete "the" from "the k" at the end of the second paragraph.

Page 28. At the end of the first and second paragraphs of Example 6.4, we should have $\mu = 5$ and $\mu = 6$ (not $\mu = 0$ and $\mu = 1$).

Page 30. In the derivation of the power function $W(\mu)$ in the top half of the page, there are three μ_1 that should just be μ.

Page 30. Towards the bottom, where the likelihood ratio is being calculated one equation should start with $(\sigma_0/\sigma_1)^n$ not $(\sigma_1/\sigma_0)^n$.

Page 32. The calculation of the first p-value is wrong. This should be $\mathbb{P}(T = 4 \text{ or } 5) = 5(0.5^4)(0.5) + 0.5^5 = 6/32 = 0.1875$.

Page 38. There is a spurious) after 'say' in line 7 of 9.2.

Page 39. In example 9.2, it gives the same answer, but is more consistent with H_0 to write e.g., $e_{11} = (293/22071)11037 = 146.52$.

Page 42. The penultimate line is missing a superscript 2 on $(x-\mu)$.

Page 44. At the end of the page 44, we should have $S_{XX} \sim \sigma^2\chi^2_{n-1}$, rather than $S_{XX}/(n-1) \sim \sigma^2\chi^2_{n-1}$.

Page 45. In 11.1 the l.h.s. of the second displayed equation should be $1-\alpha$, not α.

Page 46. In the top line, 100 should be 50.

Page 51. Five lines above Example 12.2 there is a dot missing in the subscript of $\bar{x}_{i\cdot\cdot}$.

Page 53. In the first sentence of 13.2 it should say that ϵ_i is $N(0,\sigma^2)$ (as it does in 14.1).

Page 56. 8 lines from the bottom it should be $=\beta$, not $=0$.

Page 61. The y axis of the graphs should start with -3, not -2.

Page 63. In the middle of the page α_q should be α_m.

Page 63. Three lines from the bottom, 'square' should be 'squared'.

To examples sheets

Sheet 1, Q1. Remove $n > 1$.

Sheet 1, Q5. (a) It should be $(1-T/n)^2$, not $(1-T/2)^2$.

Sheet 1, Q8. For R it should be 2.236, not 2.239, since what we want is $\Phi(2.236) - \Phi(-2.236) = \sqrt{.95}$, i.e., $\Phi(2.236) = (1+\sqrt{.95})/2$.

Sheet 2, Q7. Some things were typed wrong here. It should be: A total of n observations is made, of which n_i fall into category C_i $(i = 1, 2, \dots, k)$. Show carefully how to use a χ^2 distribution in testing the above hypothesis, and describe how you would carry out the test, using a statistic of the form $\sum_{i=1}^k (n_i - e_i)^2/e_i$, where e_i is the expected number of observations in category C_i under (an appropriate case of) the null hypothesis.

Sheet 3, Q4. It should be: (a) Find a 95% confidence interval for μ and show that its width is about 3.16.

(d) Consider the event that the 95% confidence interval for μ is narrower when σ^2 is known than it is when σ^2 is unknown, given that both intervals are computed from the same data, $X_1, \dots, X_n$, where these are IID samples from $N(\mu,\sigma^2)$.

Show that if $n = 5$ then this event has probability $1 - F_4^{-1}(a)$, where $a = 4(1.96/2.78)^2 = 1.988$, and F_4 is the cdf of the χ^2_4 distribution. Verify from tables that this probability is a bit less than 0.75 (actually, 0.748).

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