

## Correction Lecture 1.5 Slide 6 (Video at 2 minutes and 45 seconds)

The answer of the test is not fully correct, as the standard error of the forecast should not be obtained by adding the two standard errors but by taking the square root of the added variances. The correct answer reads as follows.

$S_0 = \alpha/2 + \varepsilon_0$  and  $\hat{S}_0 = a/2$ , so that the forecast error  $f = S_0 - \hat{S}_0 = (\alpha - a)/2 + \varepsilon_0$  is the sum of two components that are uncorrelated because of Assumption A5. Then  $\text{var}(f) = (1/4)\text{var}(a) + \text{var}(\varepsilon_0)$ , with estimated value  $(1/4)\text{SE}_a^2 + s^2 = (1/4)(5.767)^2 + (1.189)^2 = 9.728$ , so the standard error of the forecast is  $\sqrt{9.728} \approx 3.1$ .

The point forecast is  $a/2 = 186.5/2 \approx 93.3$ , so an approximate 95% interval is  $93.3 \pm 2 \times 3.1$ . This interval runs from 87.1 to 99.5, with width 12.4. After rounding, we find the interval  $[87, 100]$ , which is somewhat smaller than the interval  $[85, 101]$  presented in the lecture.