Real-Time Systems

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Typographical Errors

Page 18. The third paragraph should read:
The failure probability of the system over a given period of operation t is then given by...

Page 51. The second line should read:
RM1. If $\min_{t \in \tau_i} W_i(t) \leq t$, task T_i is RM-schedulable.

Page 70 Line 2 of Property 2 should read, "T_i and $t(x)$ be the time taken for section x to be executed. Then, T_i will be
    [T has been replaced by T_i.]

Page 71 The expression in Theorem 3.7 should read

$$\frac{e_1}{P_1} + \frac{e_2}{P_2} + \cdots + \frac{e_n}{P_n} + \frac{b_i}{P_i} \geq i(2^{1/i} - 1)$$

(That is, replace T_i by P_i, and replace $\leq$ by $\geq$).

Page 74 In the third line it should be, "T_3 runs until 17."

Page 80 The expression just above (3.55) should read

$$= t \sum_{i=1}^{n} \frac{e_i}{P_i} + \sum_{i=1}^{n} \frac{P_i - d_i}{P_i} e_i.$$

Page 82 The third line from the bottom should read,

- T_i EXCLUDES T_j is TRUE if T_j is not allowed to preempt T_i.

Page 86 In Example 3.26, the assignments should be $Z(3) = \{3, 4\}$ and $Z(4) = \{4\}$.

Page 90 In Step 4 of Figure 3.27 (the scheduling algorithm), replace the replace the sentence, "Otherwise this node can never be developed... go to step 3," with the following:

> If lateness(child node)n = lower bound(child node n), then close this child node and return to step 3: this solution is locally optimal. If ml < lower bound(child node n), close this node because it will never lead to a solution that is better than the current ml. Return to step 3.

Page 91 In Example 3.28 (see the diagram on page 91), T1 should finish at 90; T4 starts at 90 and finishes at 110. The lateness of the schedule is 10.

Page 92 In Example 3.28, at the top of page 92, the initial schedule should be as follows. T1 runs from 0 to 40, T3 from 40 to 60, T1 from 60 to 70, T2 from 70 to 80, T4 from 80 to 100, and T2 from 100 to 110. T4 does not miss its deadline, and gets lateness = 0.

Page 95 In Figure 3.29(c), A(5) should be after P(5), not before it.
Also, the second sentence should read "After scheduling the three alternative versions, we only have 14 time units left."

Page 114 In Example 3.38, in the bottom table, the vector associated with Step 6 should be (0.00, 0.88, 0.19).

Page 131 Just above Example 3.46 in the middle of the page, the sentence should read, "Example 3.46 illustrates this."

Page 134 There is an error in the table of task parameters in Example 3.47. The purpose of this example was to point out that there are cases in which we cannot support the ghost positions in Figure 3.50, while we can support those in Figure 3.51 (with overlap). As an exercise, try changing the task parameters so that this is the case.

Page 136 Problem 3.12 is with respect to the Priority Ceiling algorithm.

Page 143 Variables starting with `i` and `j` are also default integers in Fortran.

Page 201 In Table 5.3, the heading to the right of "Locks already set by higher-priority transaction" should read "Locks requested by lower-priority transaction."

Page 212 In the fourth line of the first paragraph of page 212, delete C_α.

Page 257 Note that in Equation 6.5, c_i is in units of bits; in Equation 6.7 (page 258) it is in units of seconds. The two are equivalent ways of representing c_i since the bandwidth of the ring determines how many bits can be transmitted in a second.

Page 258 The last line of Theorem 6.3 should read, "every node n_i will be able to transmit c_i seconds of synchronous traffic every P_i seconds."

Page 267 In the first line of text, it is class-2 arrivals which are labeled 1,2,3,4,5,6; and class-1 which are labeled a, b, c, d.

Page 272 At the end of the second paragraph, it should be

$$\delta_i = t_{max,i} + \sigma_i/n$$

instead of $\delta_i = (t_{max,i} + \sigma_i)/n$.

Page 273 Equation 6.24 should read

$$\delta_i \geq \sum_{j=1}^{i} t_{max,j} + \max_{i<k\leq\|C_m\|} t_{max,k}, \quad i = 1, \cdots, \|A\|$$

Page 306 In Figure 7.15, in C_3, it should be C 36, F 39.

Page 342 In Equation 8.30, the second term on the RHS should be $2\lambda\pi_{2,0}(t)$, not $2\lambda\mu_{2,0}(t)$.

Page 344 In Table 8.2, the top term in the (1,1) column should be $\pi_{1,1}(\tau|3,0)$.

Page 362. Equation (9.1) should read:

$$\rho = \max_{t,\Delta} \left| \frac{C_i(t + \Delta) - C_i(t)}{\Delta} - 1 \right|.$$

Page 362. Equation (9.3) should be:

$$\frac{t_2 - t_1}{1 + \rho} \leq C(t_2) - C(t_1) \leq \frac{t_2 - t_1}{1 - \rho}.$$

Page 410. Equation (A.8) should be

$$f_X(x) = a \exp(-ax).$$