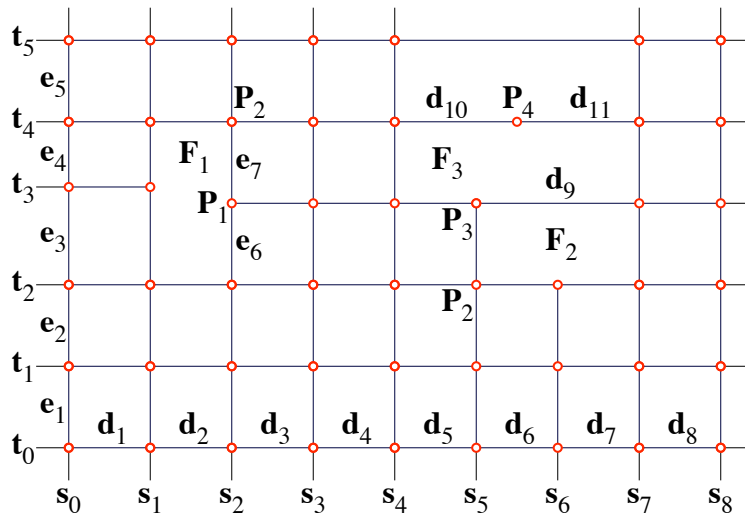


CS 557  
**Homework 22**  
 Due Thursday, 3 December 2009

For this T-spline, the knot coordinate system has its origin  $(s_0, t_0) = (0, 0)$  in the lower-left corner as shown. The labels  $d_i$  and  $e_i$  are knot intervals. This is the entire T-spline control grid, although the end-condition knot intervals are not shown. Let  $d_i = 2, i = 1, \dots, 8, d_{10} = 3$ . Also,  $e_i = 2, i = 1, \dots, 5$  and  $e_6 = 1$ .



1. What is the value of  $e_7, d_9$ , and  $d_{11}$ ?
2. What are the knot vectors for the blending function for  $P_1$ ?
3. What are the knot vectors for the blending function for  $P_3$ ?
4. What is the value of  $B_3(9, 5)$ ?
5. Draw a circle around each control point whose blending function is non-zero at  $(s, t) = (7, 5)$ .