# occam programming assignment

Computer Engineering and Science
Case Western Reserve University
ECMP 424
Spring 1990
Due: 1 May 1990

This assignment has two parts. In the first part, you must implement each of the eight Data Driven Net (DDN) cell types in occam. Remember, the DDN cell types are:

| Cell type | Firing rule |
|-----------|-------------|
| Operator | Conjunctive |
| Synch | Conjunctive |
| Call | Conjunctive |
| Distribute | Select and data inputs |
| Select | Select input and corresponding data input |
| Arbiter | "First" of any data input |
| Gate | Initially data input, then feedback and condition |

Each cell type should be written as a separate occam process. The most difficult job will be finding the right combination of occam SEQ, PAR and ALT constructs to implement the desired firing set behavior. Do **not** implement arc FIFO buffers (queues.)

The second part of the assignment is a short (5 page maximum) essay on the performance implications of a distributed dataflow net on a transputer farm. Be sure to address the case where the number of physical transputer processors is less than the number of data-driven cells. How would you allocate cells to processors to achieve the best performance? (Hint: Available communication bandwidth will have a significant or even dominating effect.)

A copy of "Communicating processes and occam," by David May will be distributed with your next transparency set. This paper summarizes occam and gives a few short examples.