We are given f[0..M), g[0..N) of int. We are told that f is ascending and g is descending. We are asked to construct a program to compute the number of pairs f.i and g.j whose sum exceeds 37.

$$r = \langle +\ i,j : 0 \le i < M \wedge 0 \le j < N : h.(f.i).(g.j) \rangle$$

where

* (0) h.x.y = 1 $\Leftarrow$ $x + y > 37$
* (1) h.x.y = 0 $\Leftarrow$ $x + y \le 37$

We began by modelling our domain.

* (2) C.m.n = $\langle +\ i, j : m \le i < M \wedge n \le j < N : h.(f.i).(g.j) \rangle$

In Chapter 27 we saw how do construct a model based upon this definition (2) and then used the model to construct an algorithm.

Now I want you as an exercise to see what would have happened if we had chosen a different way to define C.m.n In all there are 3 other ways we could have gone. They are as follows..

* (2) C.m.n = $\langle +\ i, j : m \le i < M \wedge 0 \le j < n : h.(f.i).(g.j) \rangle$

* (2) C.m.n = $\langle +\ i, j : 0 \le i < m \wedge 0 \le j < n : h.(f.i).(g.j) \rangle$

* (2) C.m.n = $\langle +\ i, j : 0 \le i < m \wedge n \le j < N : h.(f.i).(g.j) \rangle$

Starting from each of these definitions calculate and see what happens.