Body-fitted structured grids

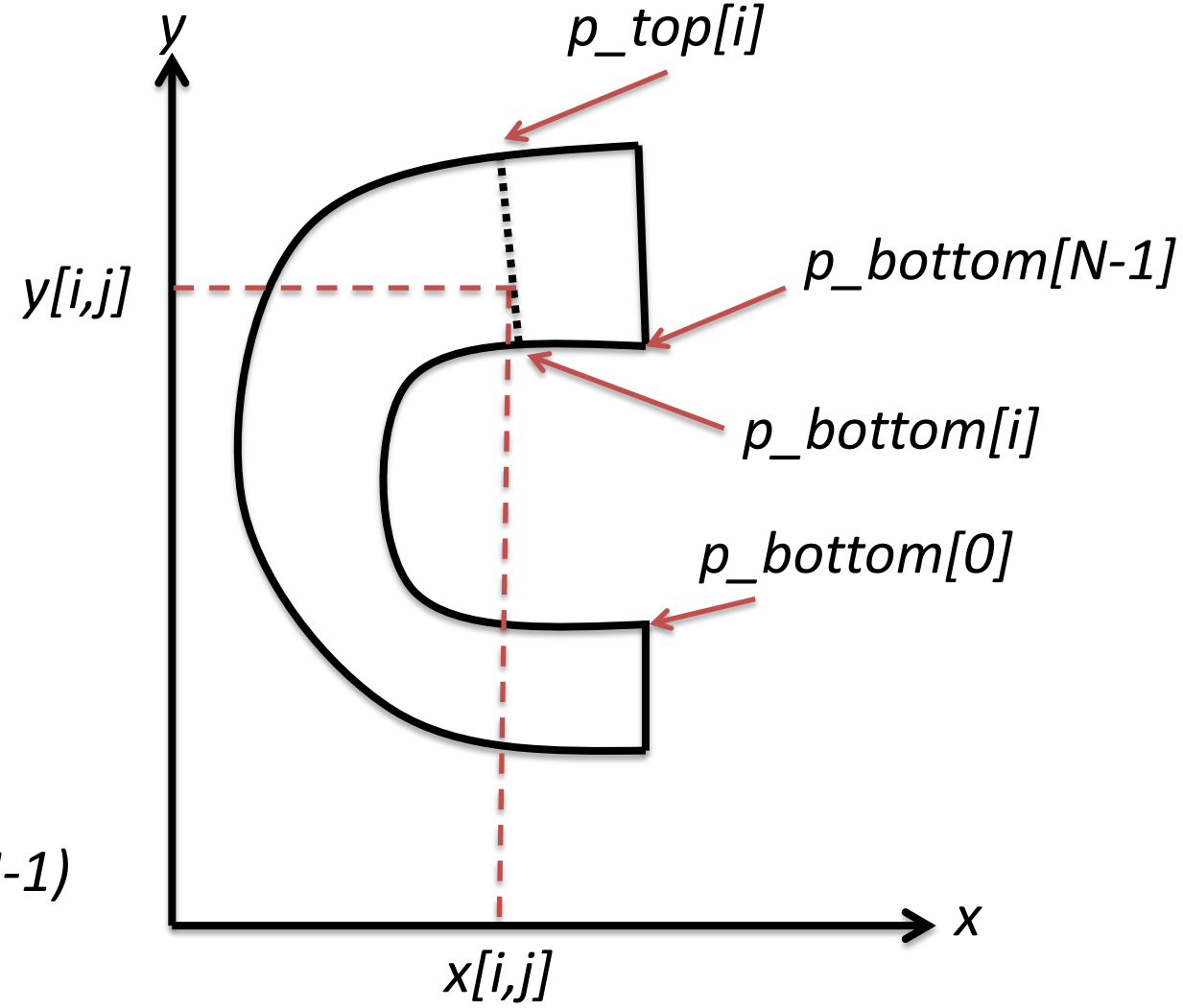
The input to the code are two arrays, p_bottom[0:N], with the (x,y) coordinates of the nodes of the structured grid on the body surface and p_top[0:N], with the (x,y) coordinates of the nodes on the unstructured grid away from the body surface.

The next slide explains how the Python code builds the grid of nodes r[j] for the simple UNIFORM case, using a linear fitting between corresponding nodes in the bottom and top surfaces.

x[i,j] = r[j,0]

y[i,j] = r[j,1]

For other cases (ONE_SIDED, etc) the linear fitting is replaced by another expression, but the basic algorithm remains the same.



$\eta = 0, 1, 2, \ldots, (M-1)$

$r[0:M] = p\_bottom[i] + [(p\_top[i] - p\_bottom[i])/(M-1)] * \eta$

$i = 0, 1, \ldots, (N-1)$

$j = 0, 1, \ldots, (M-1)$

$x[i,:] = r[:,0]$

$y[i,:] = r[:,1]$