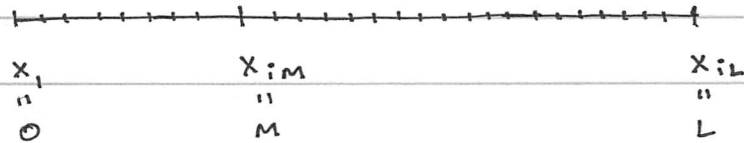


Handout 2 - code outline

- initialize grid and parameters
- calibrate : find Y_0 so $\phi(L) = \phi_{RP}$
- time loop : $t_n \rightarrow t_{n+1}$
 - (2) $H_i^n \rightarrow H_i^{n+1}$
 - (3) use H_i^{n+1} to get ϕ_i^{n+1}

Geometry



typical

1 cm

3 cm

x_1

x_{1001}

$x_{3001} \rightarrow dx = 10^{-3}$

(1) ~~convert~~ integrate once - ODE - RK4

calibration - bisection

(2) easy - Euler Method

$$H_i^{n+1} = H_i^n + dt \frac{A_M}{2FC_M} \exp(-\alpha_M \phi_i^n)$$

(3) hard - nonlinear BVP

options

i) linearize

ii) shooting method

iii) pseudotime iteration

iv) other iterative method

Handout 2 - code routines

initialise and parameters

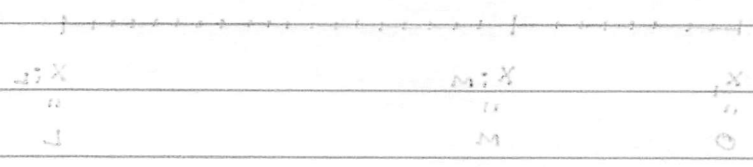
$$\phi_{t+1} = (M) \phi_t \text{ and } \phi_t = \phi_{t-1}$$

time loop: for $t \rightarrow t_{max}$

$$(1) \quad H_t^* \rightarrow H_{t+1}^*$$

$$(2) \quad \text{use } H_{t+1}^* \text{ to get } \phi_{t+1}$$

Normality



Weight X_1 X_{1001} $X_{3001} \rightarrow 9X = 10^{-2}$

(1) ~~constant~~ integrate once - ODE - RK4

Calibration - discussion

(2) easy - Euler method

$$H_{t+1}^* = H_t^* + \Delta t \frac{dH}{dt} \text{ exp}(-\alpha H_t^* \phi_t^*)$$

(3) hard - nonlinear BVP

options

i) inverse

ii) shooting method

iii) bisection method

iv) other iterative method