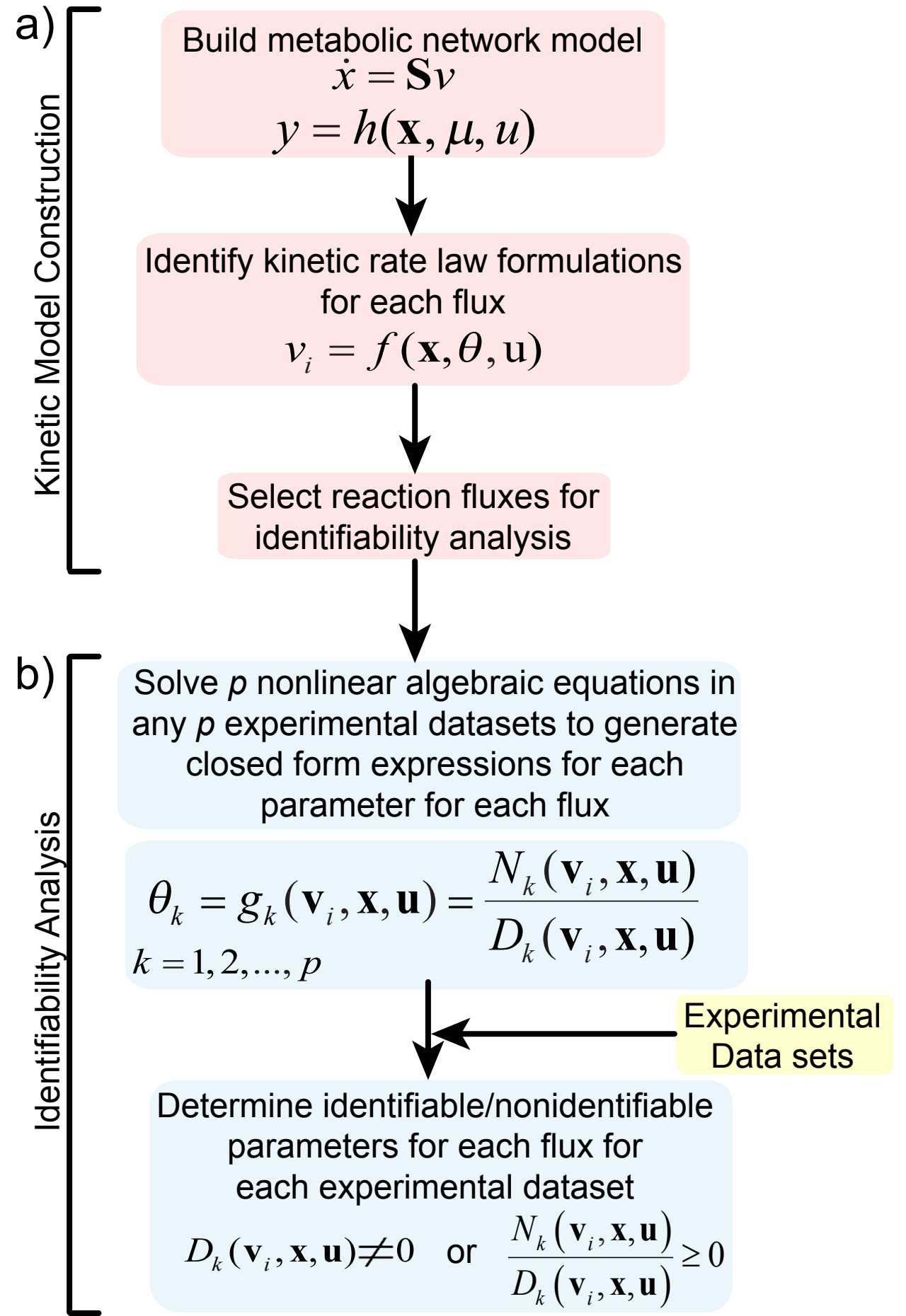
a)
Kinetic Model Construction
Build metabolic network model
$\dot{x} = \mathbf{S}v$
$y = h(\mathbf{x}, \mu, u)$
Identify kinetic rate law formulations for each flux
$v_i = f(\mathbf{x}, \theta, \mathbf{u})$
Select reaction fluxes for identifiability analysis
b)
Identifiability Analysis
Solve *p* nonlinear algebraic equations in any *p* experimental datasets to generate closed form expressions for each parameter for each flux
$\theta_k = g_k(\mathbf{v}_i, \mathbf{x}, \mathbf{u}) = \frac{N_k(\mathbf{v}_i, \mathbf{x}, \mathbf{u})}{D_k(\mathbf{v}_i, \mathbf{x}, \mathbf{u})}$
$k = 1, 2, \ldots, p$
Experimental Data sets
Determine identifiable/nonidentifiable parameters for each flux for each experimental dataset
$D_k(\mathbf{v}_i, \mathbf{x}, \mathbf{u}) \neq 0$ or $\frac{N_k(\mathbf{v}_i, \mathbf{x}, \mathbf{u})}{D_k(\mathbf{v}_i, \mathbf{x}, \mathbf{u})} \geq 0$