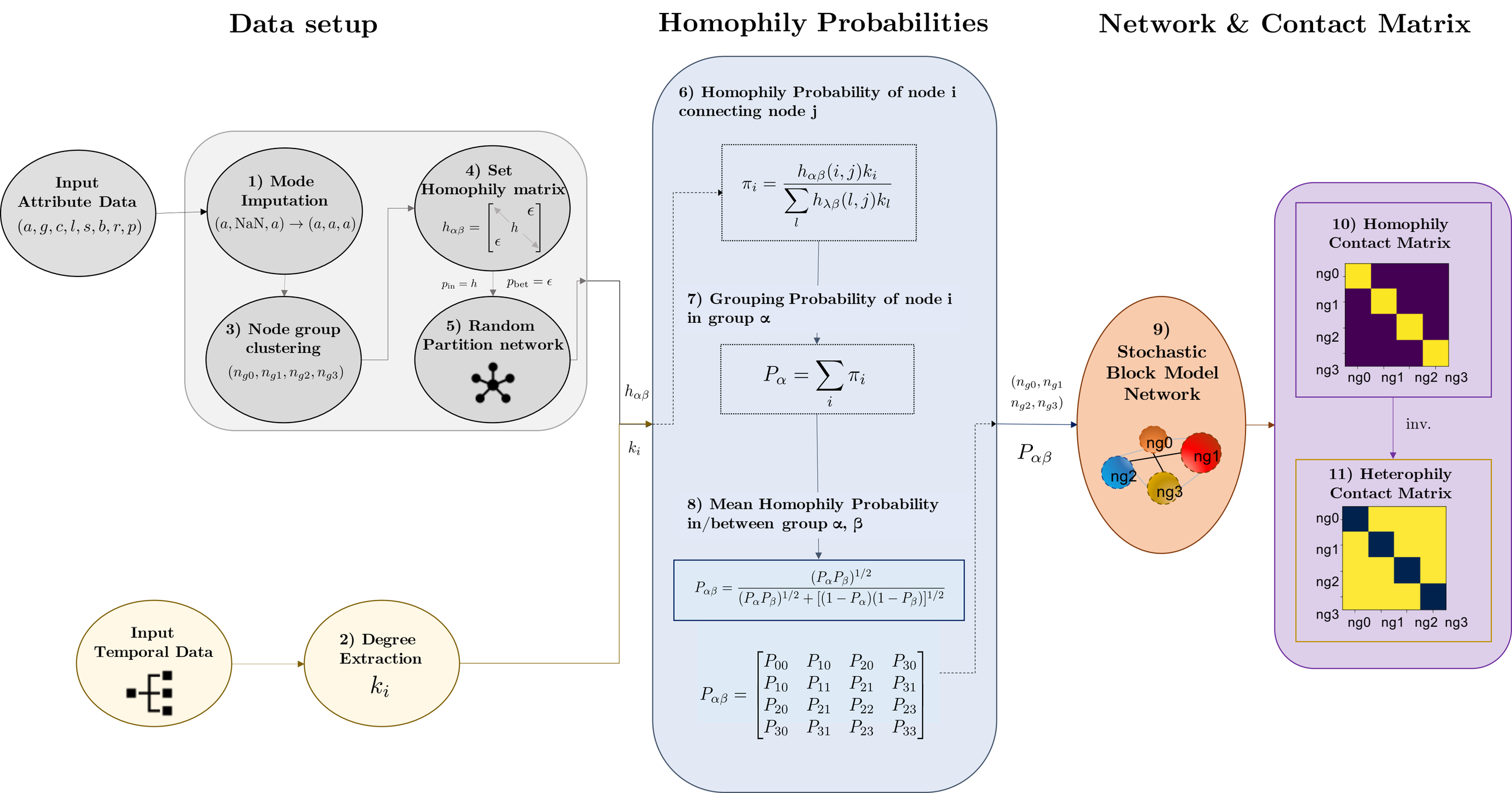
Data setup
Homophily Probabilities
Network & Contact Matrix
Input Attribute Data
(a, g, c, l, s, b, r, p)
1) Mode Imputation
$(a, \mathrm{NaN}, a) \rightarrow (a, a, a)$
3) Node group clustering
$(n_{g0}, n_{g1}, n_{g2}, n_{g3})$
4) Set Homophily matrix
$h_{\alpha\beta} = \begin{bmatrix} h & \epsilon \\ \epsilon & h \end{bmatrix}$
$p_{\mathrm{in}} = h$
$p_{\mathrm{bet}} = \epsilon$
5) Random Partition network
$h_{\alpha\beta}$
k_i
Input Temporal Data
2) Degree Extraction
k_i
6) Homophily Probability of node i connecting node j
$\pi_i = \frac{h_{\alpha\beta}(i,j)k_i}{\sum_l h_{\lambda\beta}(l,j)k_l}$
7) Grouping Probability of node i in group α
$P_\alpha = \sum_i \pi_i$
8) Mean Homophily Probability in/between group α, β
$P_{\alpha\beta} = \frac{(P_\alpha P_\beta)^{1/2}}{(P_\alpha P_\beta)^{1/2} + [(1-P_\alpha)(1-P_\beta)]^{1/2}}$
$P_{\alpha\beta} = \begin{bmatrix} P_{00} & P_{10} & P_{20} & P_{30} \\ P_{10} & P_{11} & P_{21} & P_{31} \\ P_{20} & P_{21} & P_{22} & P_{23} \\ P_{30} & P_{31} & P_{23} & P_{33} \end{bmatrix}$
$(n_{g0}, n_{g1}$
$n_{g2}, n_{g3})$
$P_{\alpha\beta}$
9) Stochastic Block Model Network
ng0
ng1
ng2
ng3
10) Homophily Contact Matrix
ng0
ng1
ng2
ng3
ng0 ng1 ng2 ng3
inv.
11) Heterophily Contact Matrix
ng0
ng1
ng2
ng3
ng0 ng1 ng2 ng3