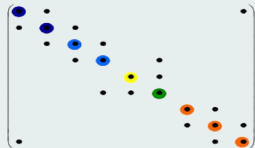


Recursive application of a two-grid scheme

- setup of a convergent iterative solver M (the smoother)
- setup of a coarse vector space \mathcal{R}^{n_c} from \mathcal{R}^n
- build the prolongation P from A
- compute coarse grid matrix $A_c = P^T A P$

AMG based on Aggregation of dofs

Group the dofs into disjoint sets of aggregates G_j ; each aggregate G_j corresponds to 1 coarse dof
Associated prolongation:



$$P := P_{ij} = \begin{cases} w_i & \text{if } i \in G_j \\ 0 & \text{otherwise} \end{cases}$$

$$i = 1, \dots, n, \quad j = 1, \dots, n_c,$$

or smoothed version of P (Vaněk 1996)