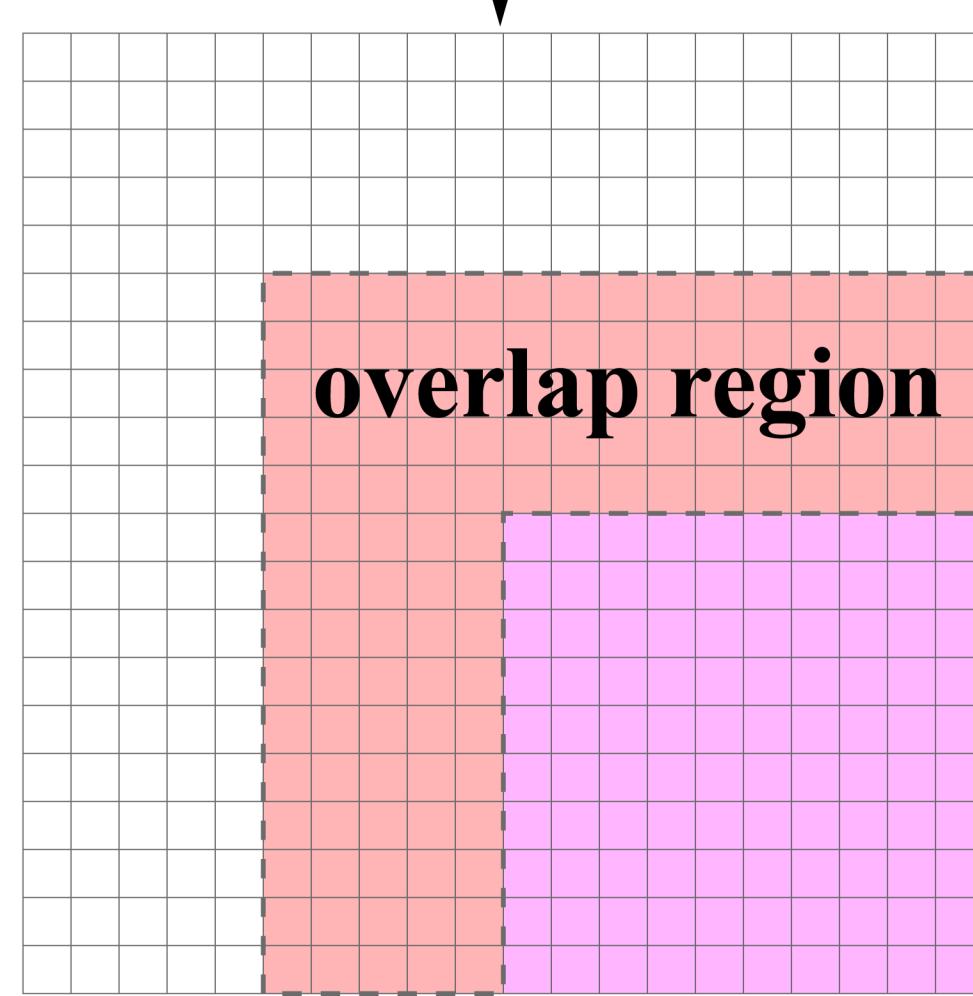
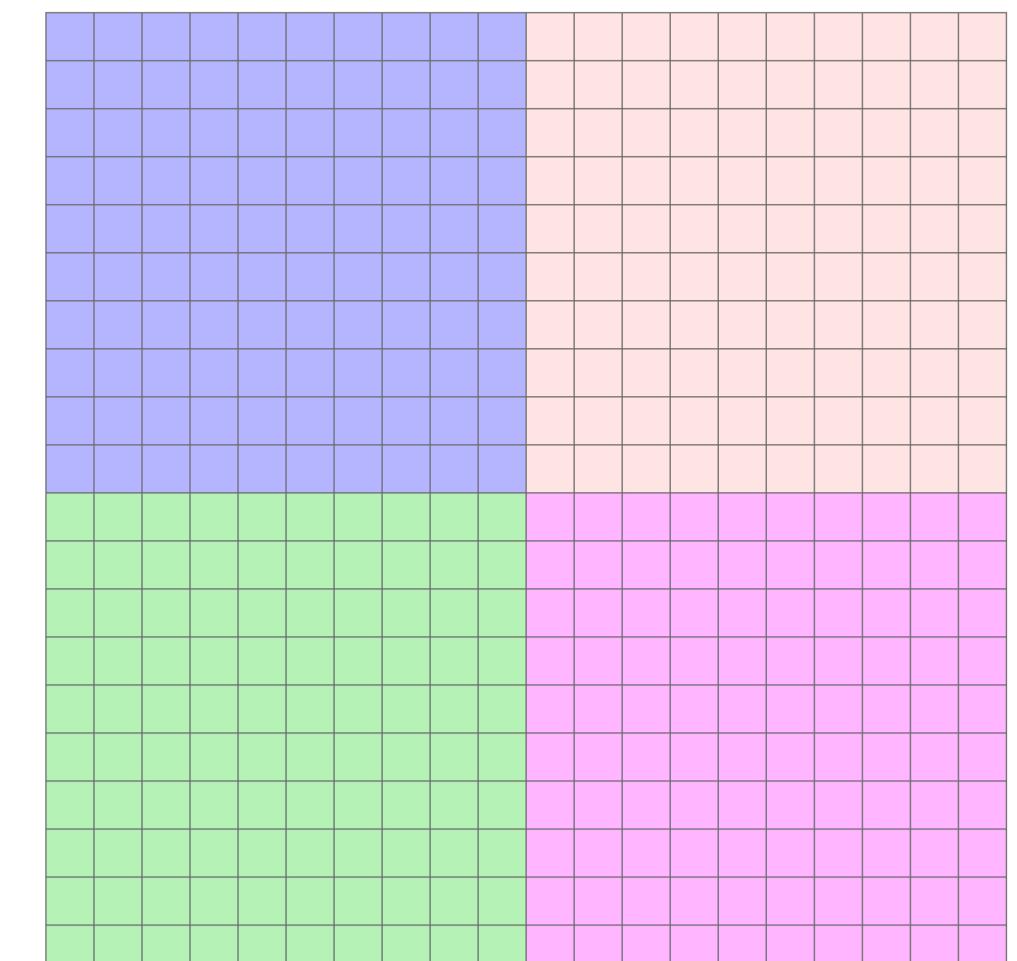
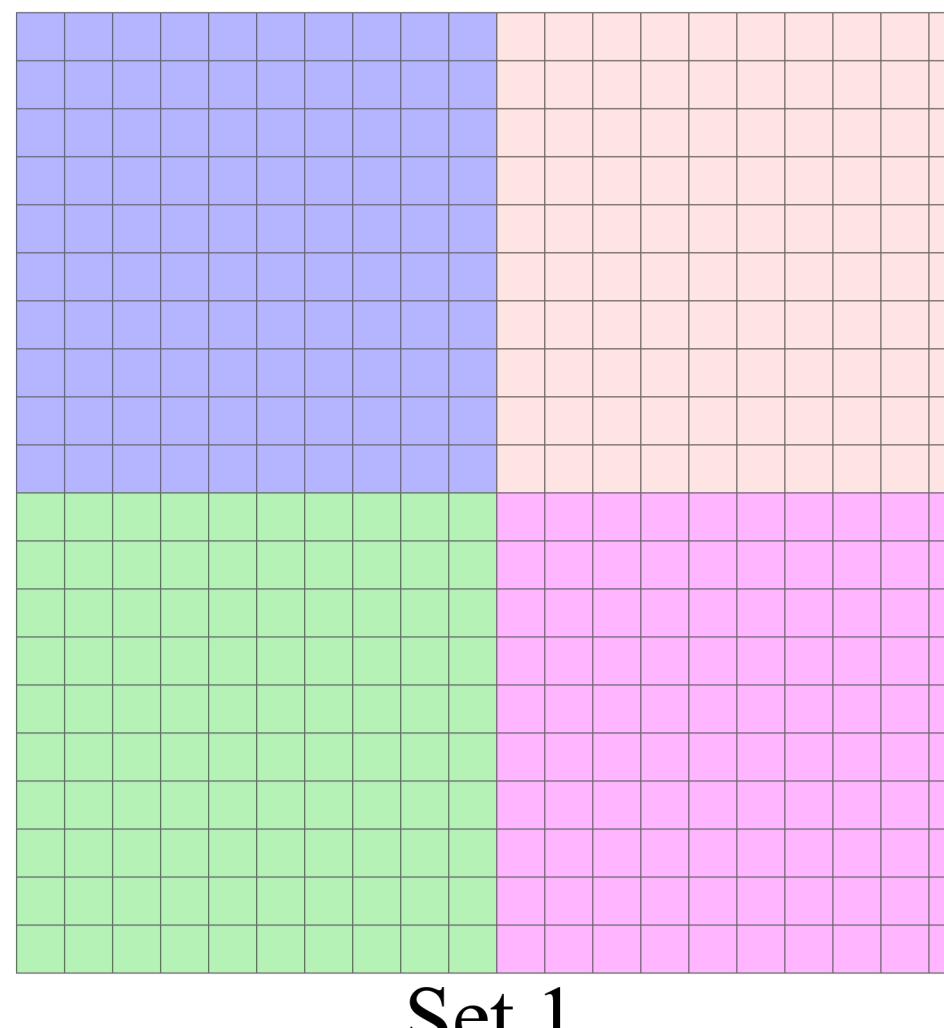
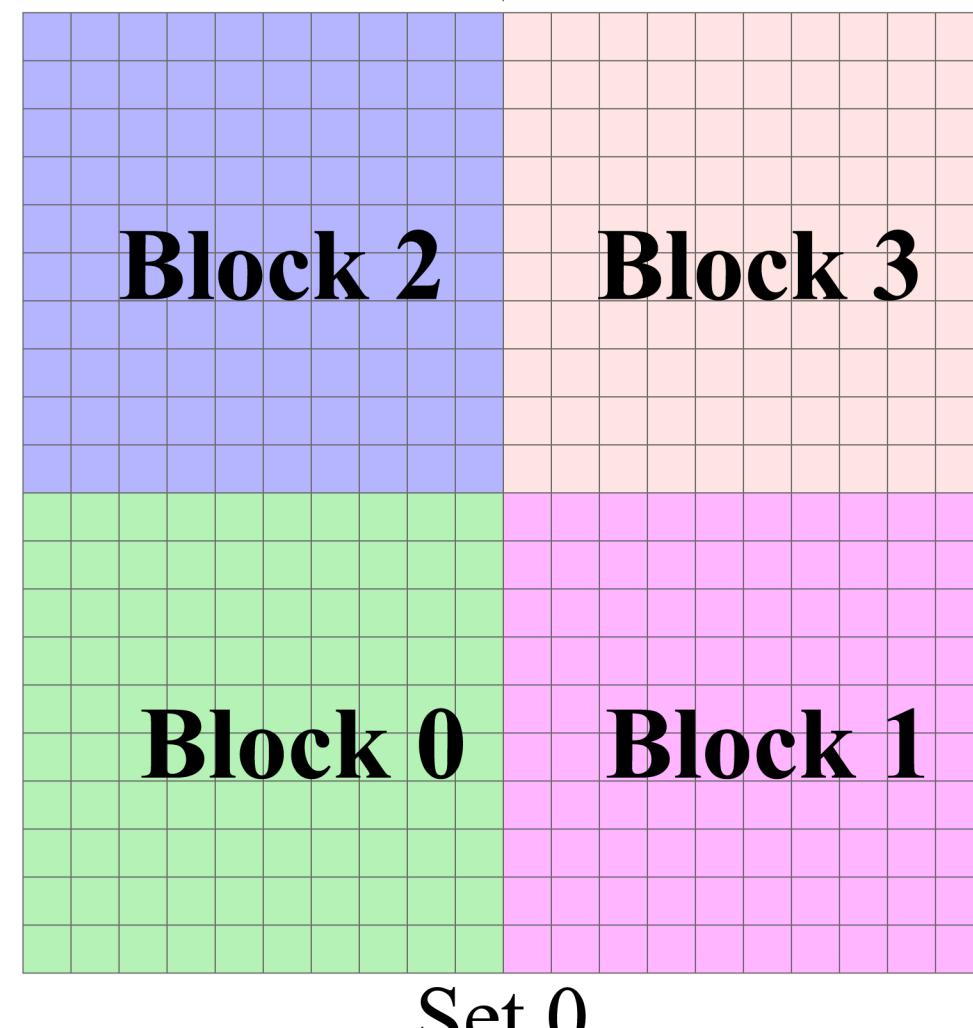
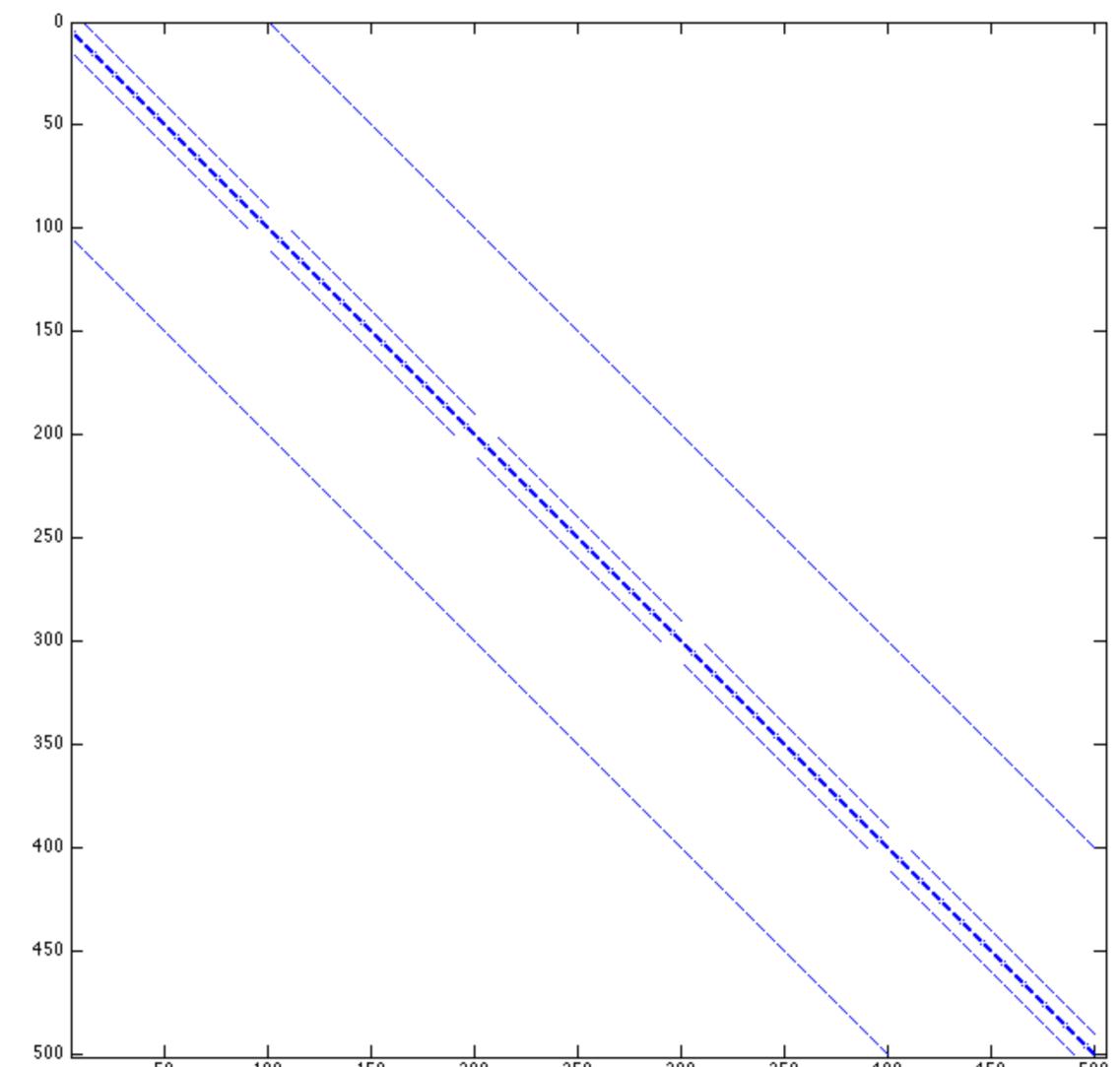
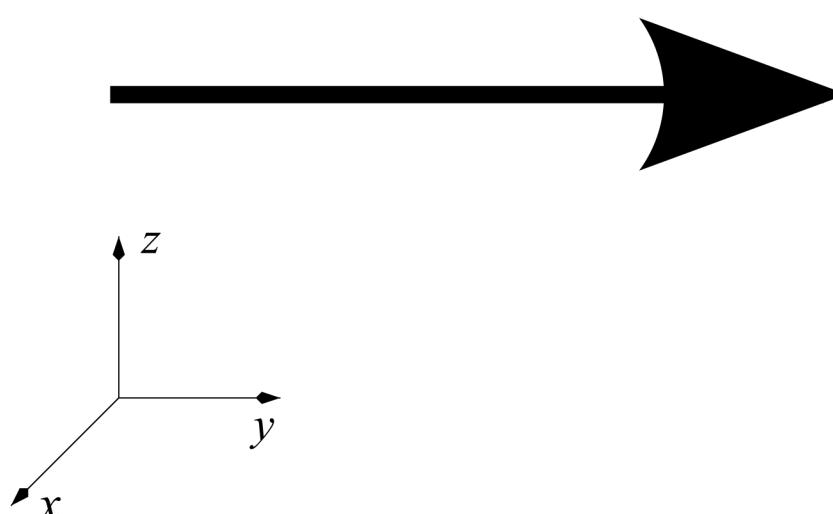
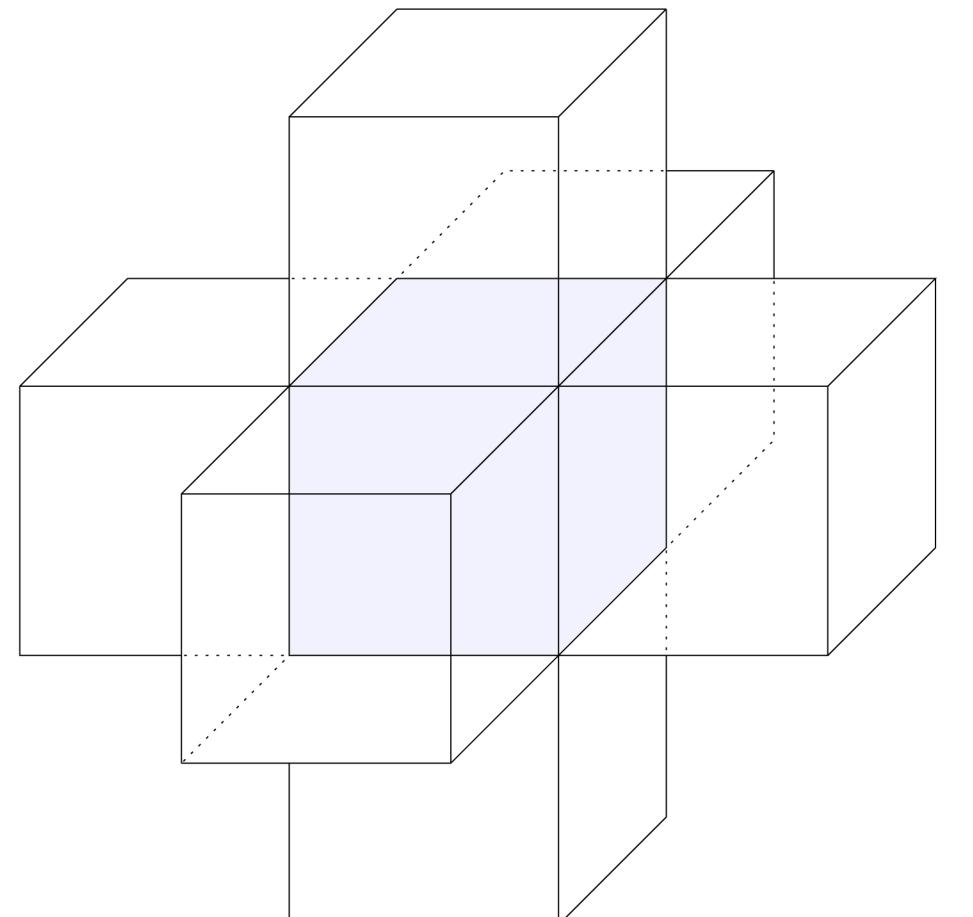


Finite-volume discretization of ADR equation

$$\partial_t u + \nabla \cdot \mathbf{f}(\mathbf{x}, u) - \nabla \cdot [d(\mathbf{x}, u) \nabla u] + r(\mathbf{x}, u)u = q(\mathbf{x}, t)$$

yields nearest-neighbor cell coupling for random walks that is represented in the matrix structure:



Overlapping Regions within a Set

To improve parallel random walk efficiency within a set, overlapping domains can be used. The computational cells (matrix rows) in red are replicated on multiple blocks such that histories do not have to be communicated from block 1 until they cross the overlap region