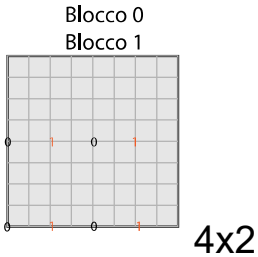
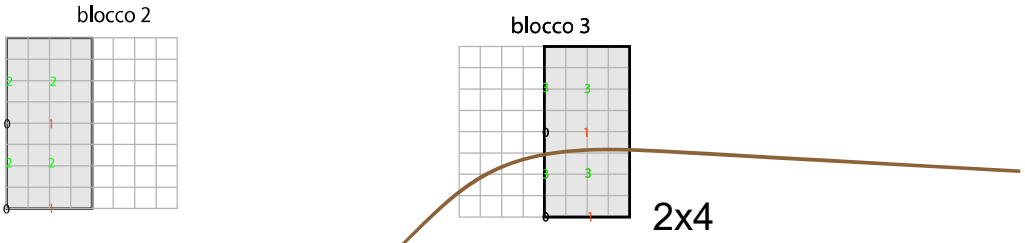
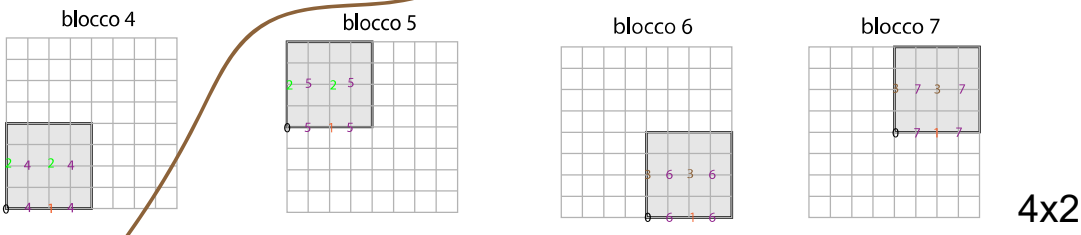
Bitmask

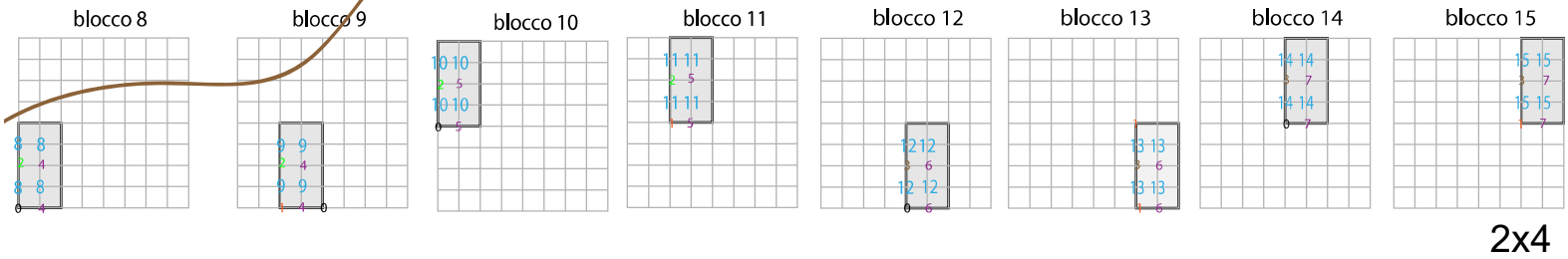
0	1	2	3	4	5	6
V	0	1	0	1	0	1
			0	2	4	8
			1	3	5	9
					6	10
					7	11
						12
						13
						14
						15

bits_per_block=2
samples_per_block=4

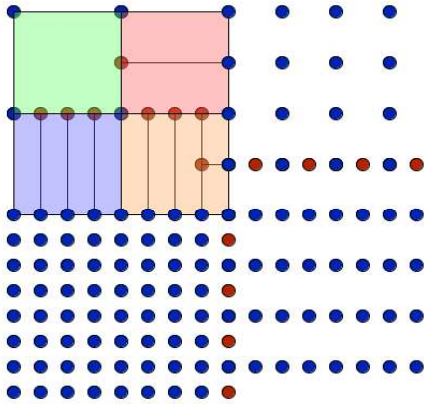




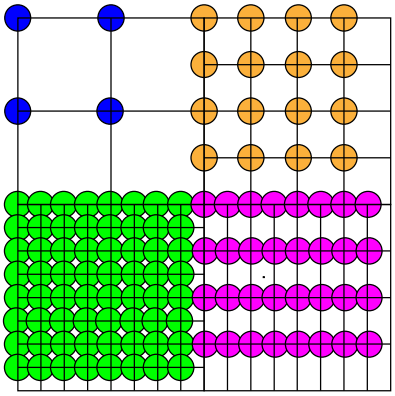




Duong demo



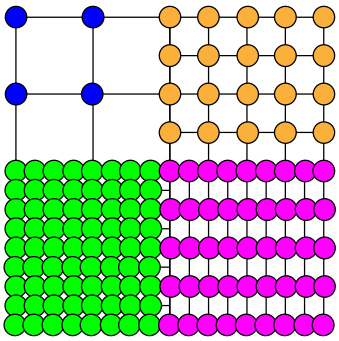
Same SparseArray

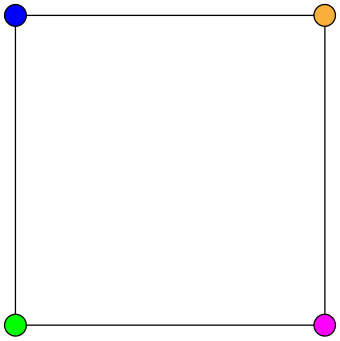


Duong problem:
Decompose a Sparse Array in N regular grids

Let's simplify the problem:
only one regular grid

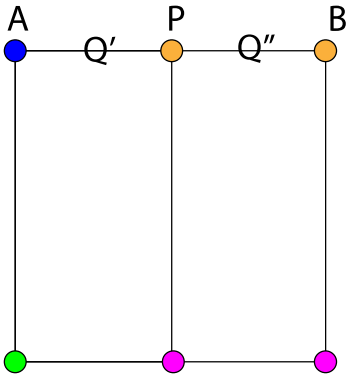
1) clamp last row/last column





2) Start with a 4 with the samples on the corners
We always have to start with the entire domain
Eventually we can drop some quads if they don't overlap with our window-of-interest.

3) Split each quad in two half (using the bitmask V0101...)
if the new sample exists in the SparseArray use it:



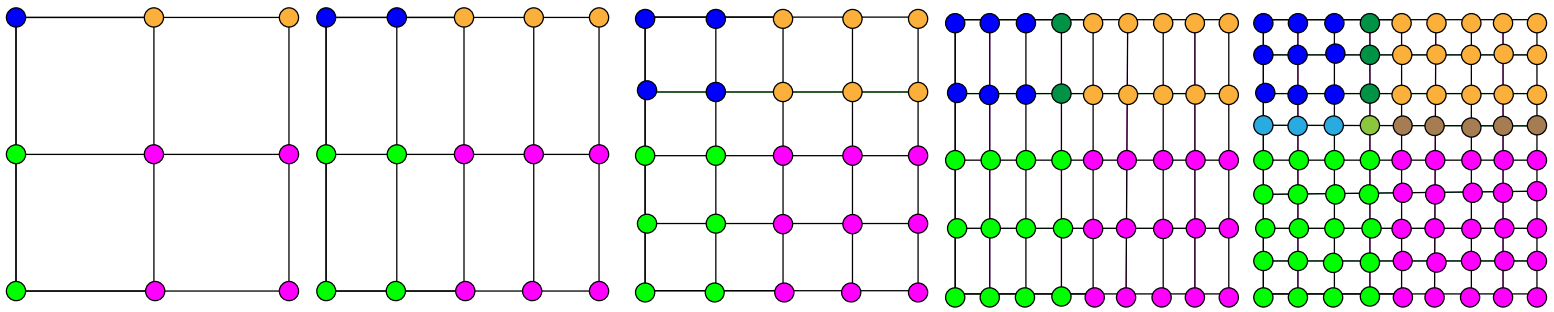
f(P) = from SparseArray

Otherwise we use the average of the two samples:

f(P) = 0.5 * (f(A)+f(B))

NOTE: We can prove we are using the correct neighbors of the SparseArrayMesh i.e. use an existing edge of the SparseArray implicit mesh.

There cannot exist a point Q' (Q") with f(Q') (f(Q")) in the SparseArray with Q in between AP (PB).
This is because new samples are generated by HzOrder exactly by splitting quads.
If there was a point Q' (Q") between AP (PB) with f(Q') (f(Q")) in the SparseArray, then f(P) must exist



RegularArray