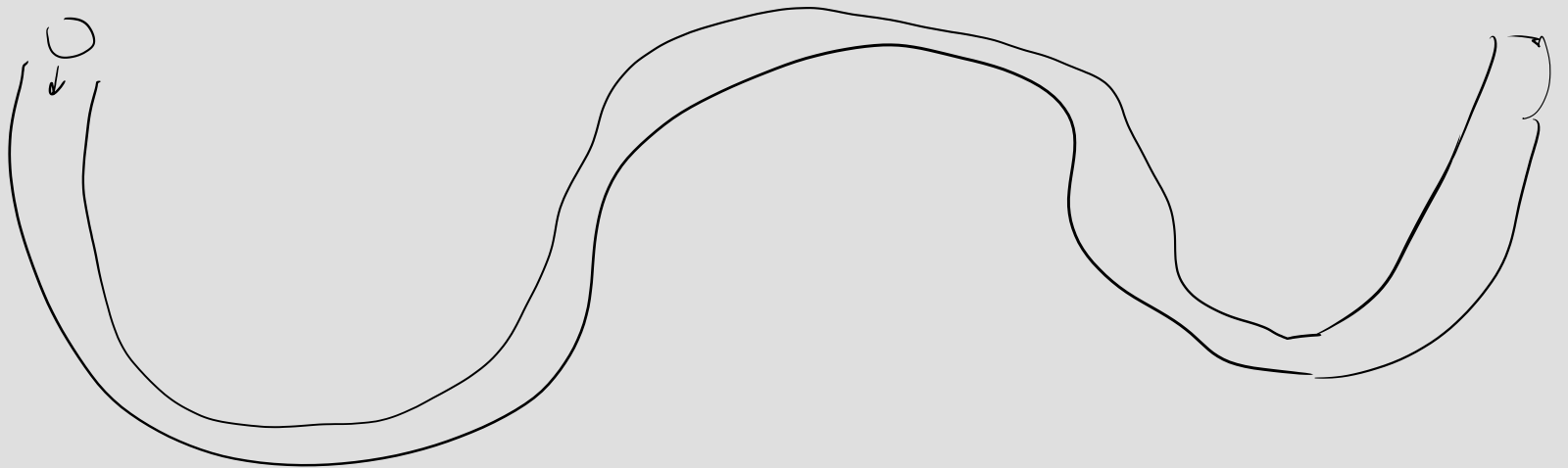
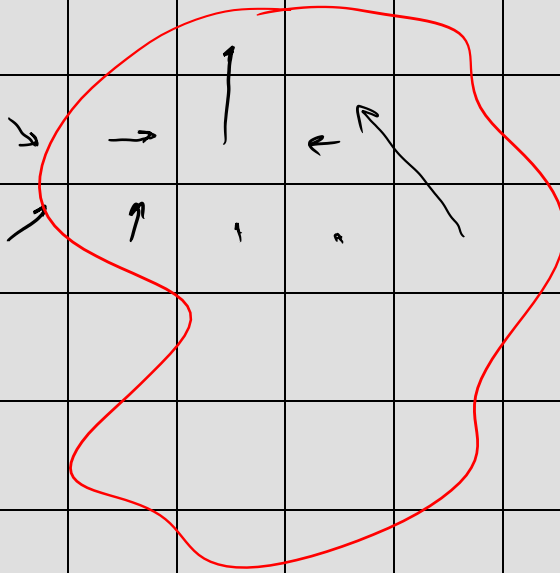
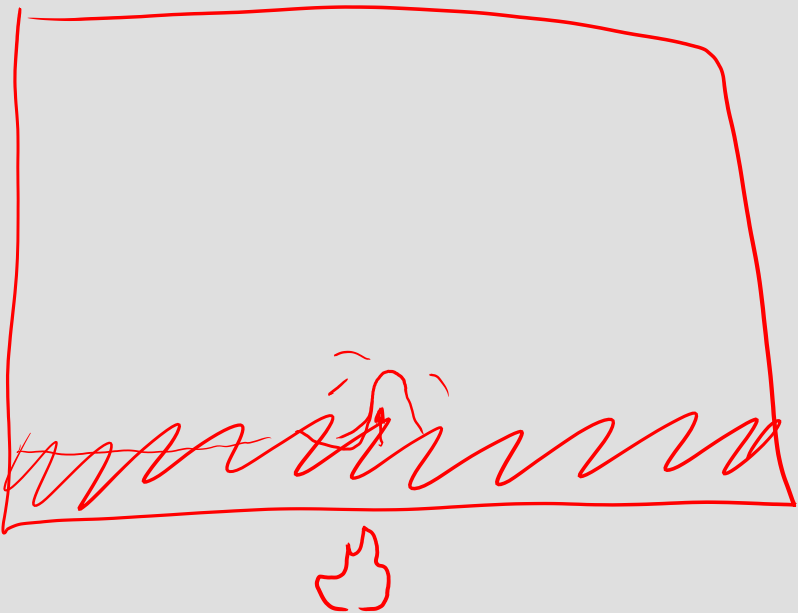
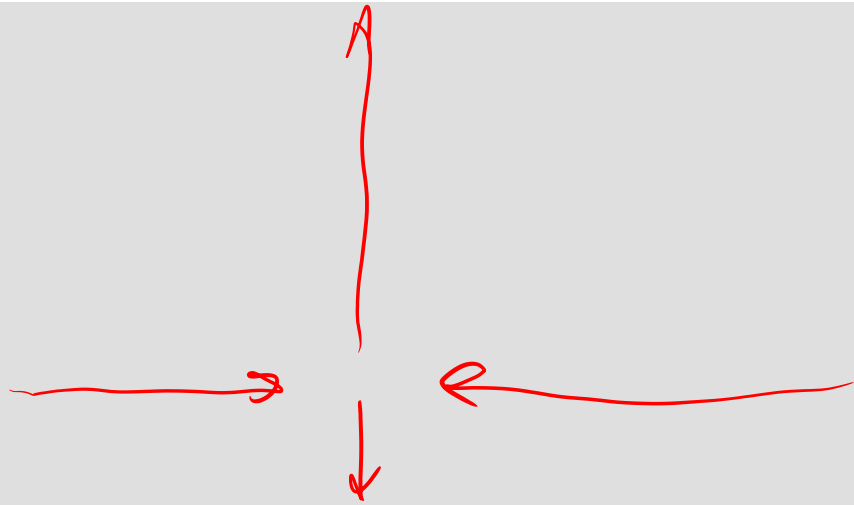


Incompressible

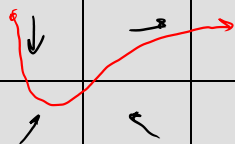
Divergence-free
velocity field



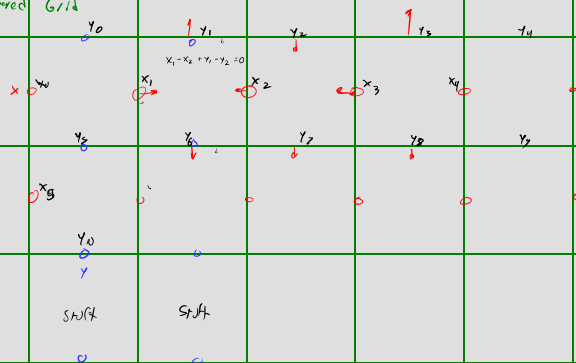




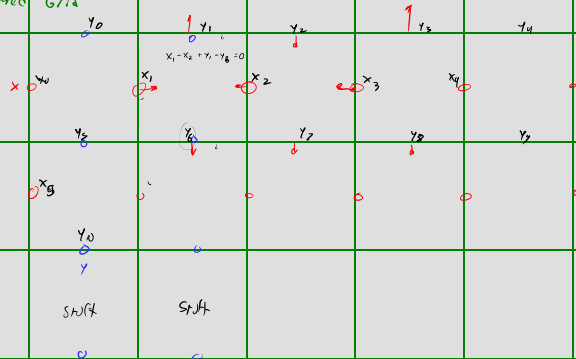
Self-advecting

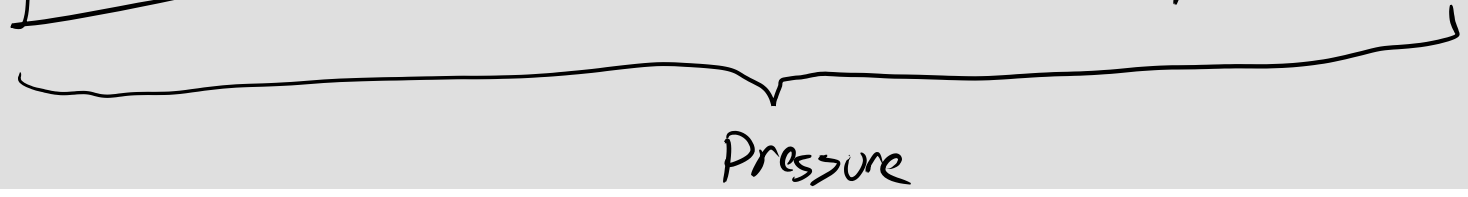
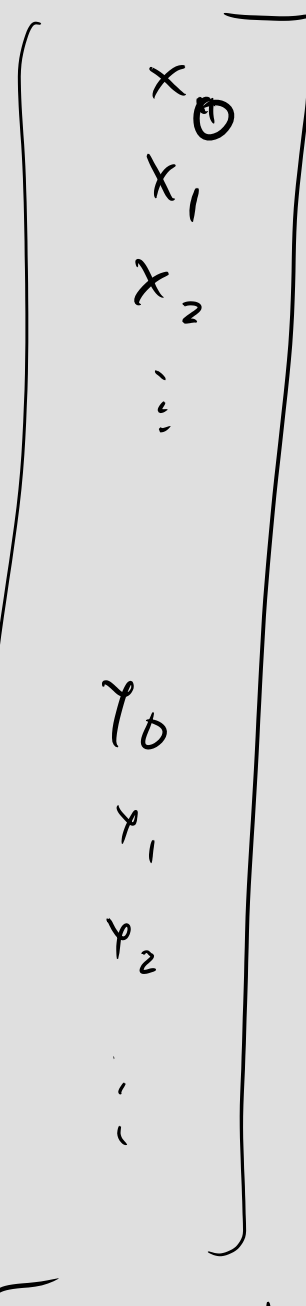
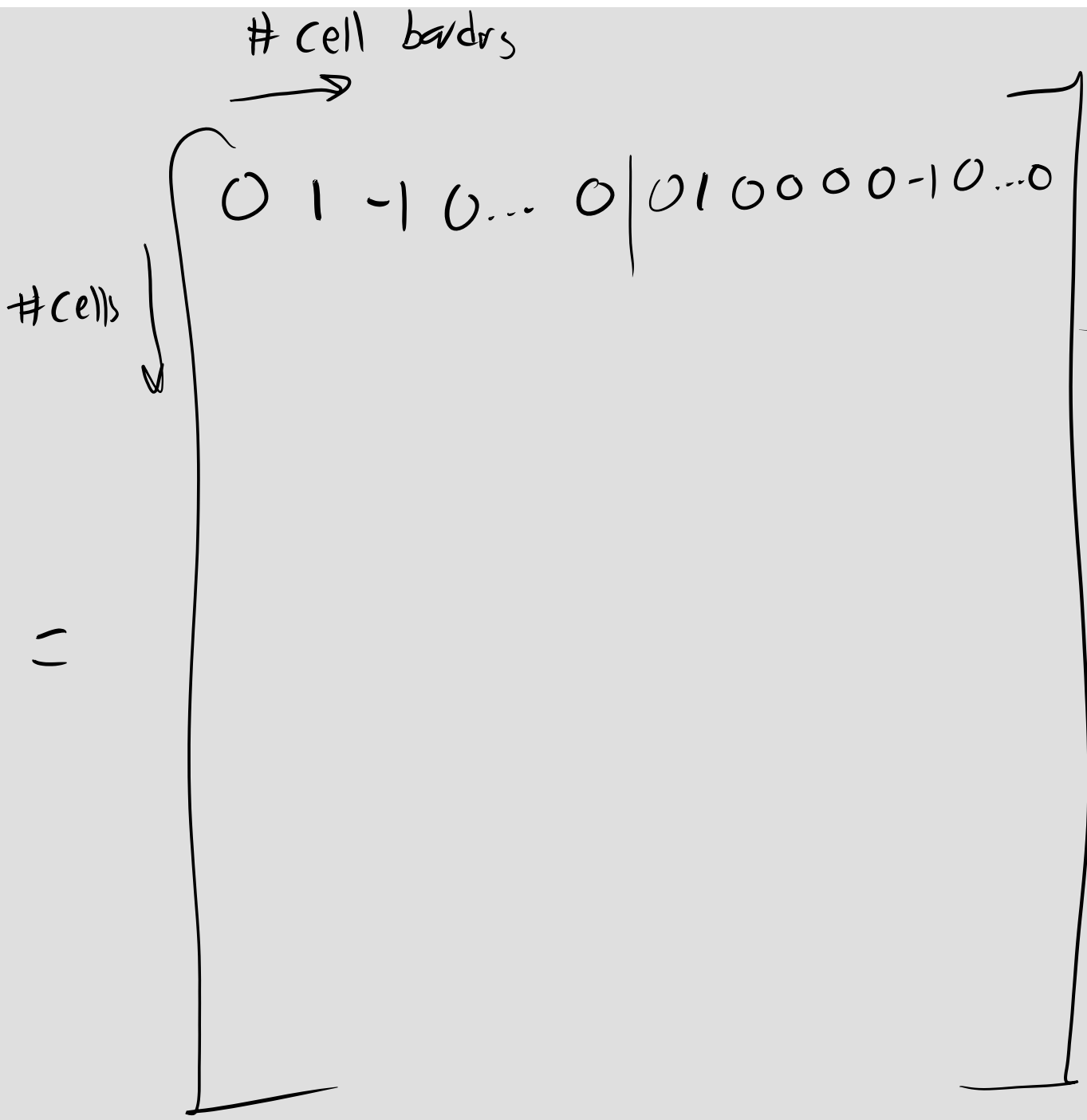
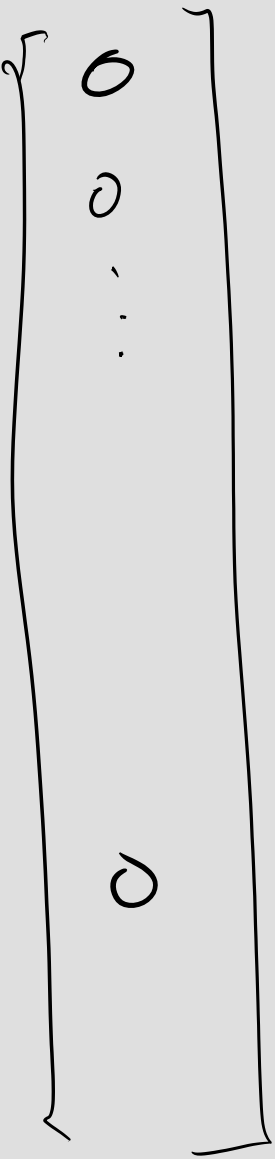


Staggered Grid



Staggered Grid

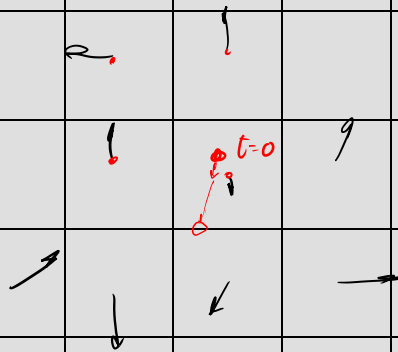


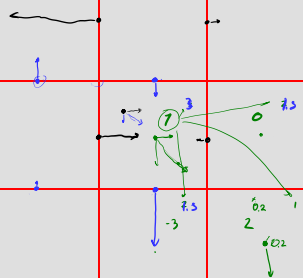


forward advection

• linear interpolation across
of nearby velocities

$$\vec{v}_{\text{vel}} \cdot \Delta t = \Delta \vec{x}$$

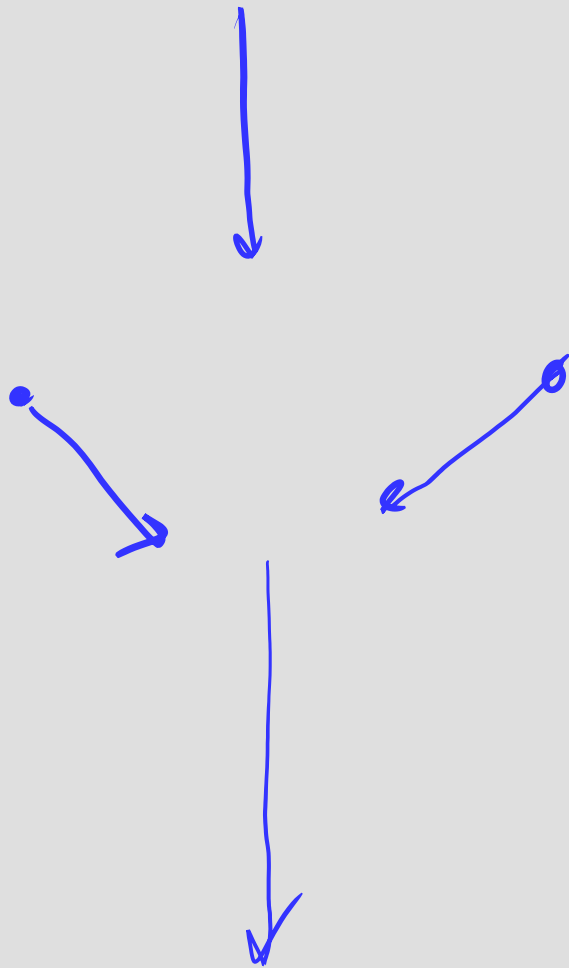




forward advection - conserves

moving

momentum
not energy



Backward

Advection



Lossy

Stable



frame:

- make geom → • advect velocity
- re-insu elem → • make vel divergence-free
- advect stuff
- draw

draw:

2D Snake: stuff → whiteness

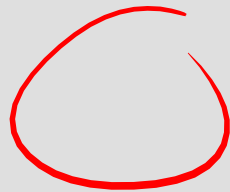
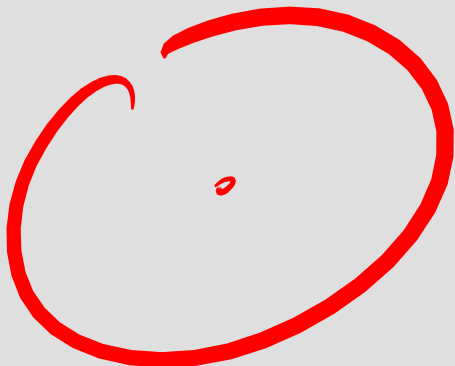
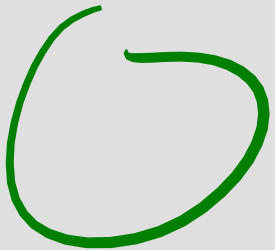
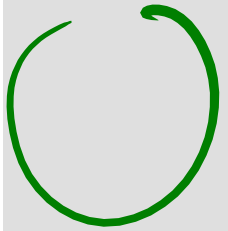
3D Snake: volumetric

3D water: level set
(blobbies) match
Cube

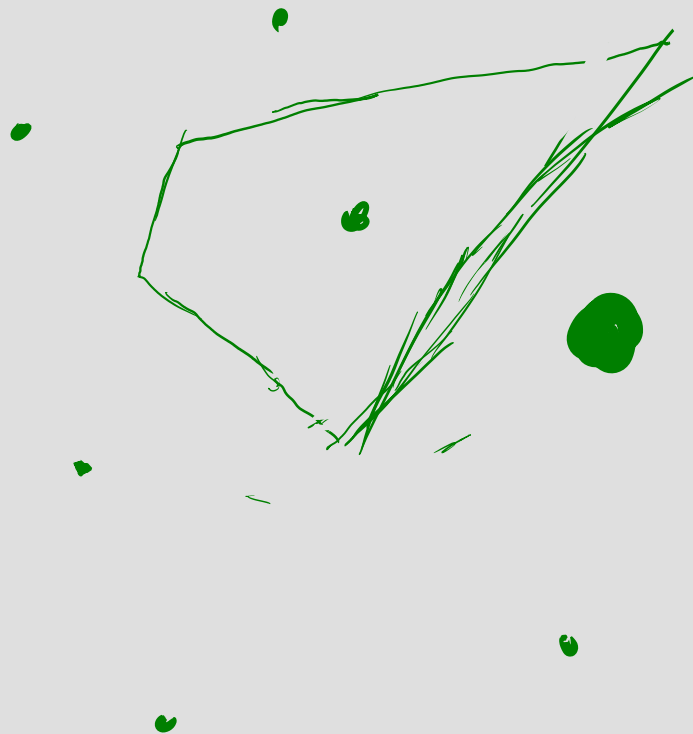
Smoothed Particle Hydrodynamics

incompressible
self-advancing
viscosity





Voronoi diagram



Power diagram

