

NOISE TO THE NEXT LEVEL

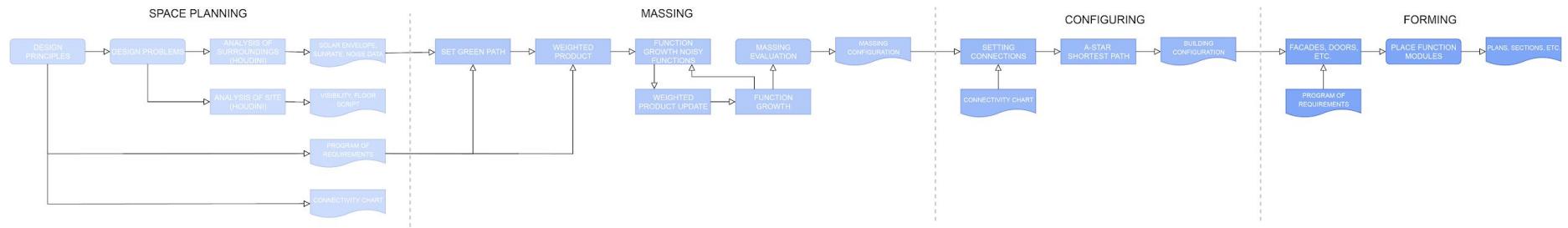
FINAL PRESENTATION COMPUTATIONAL DESIGN STUDIO

JOB DE VOGEL, VICTOR WERNET, IDA KONGSTED

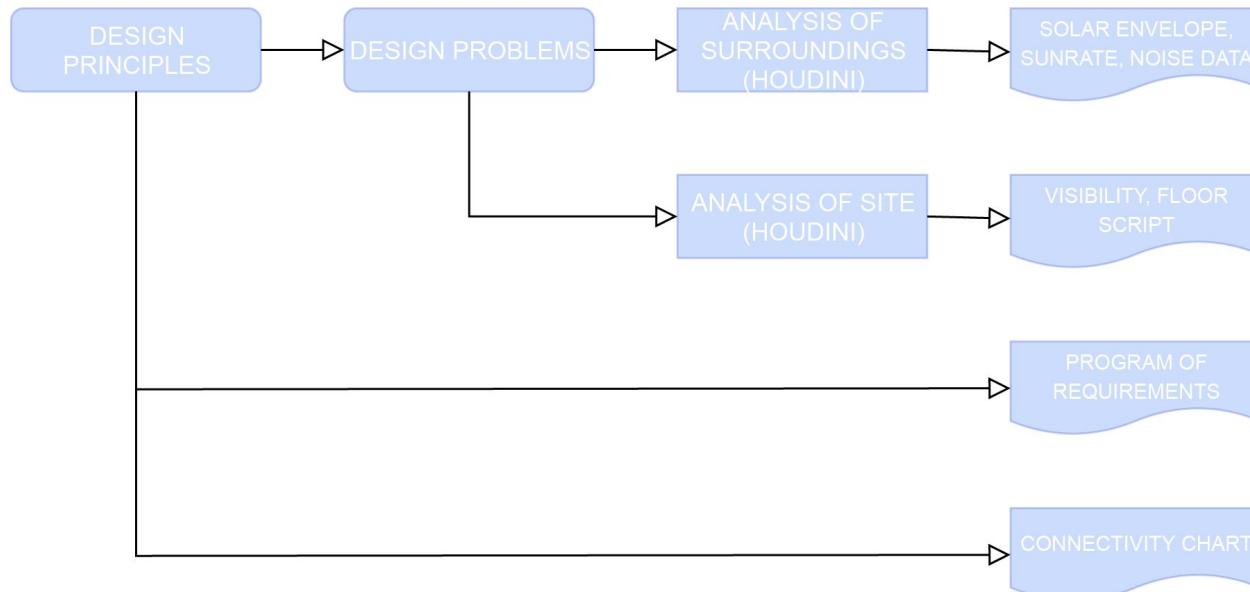
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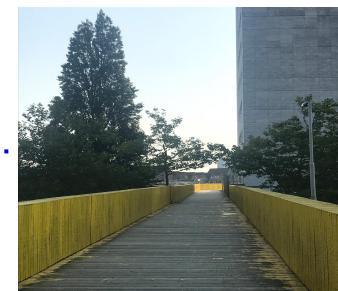
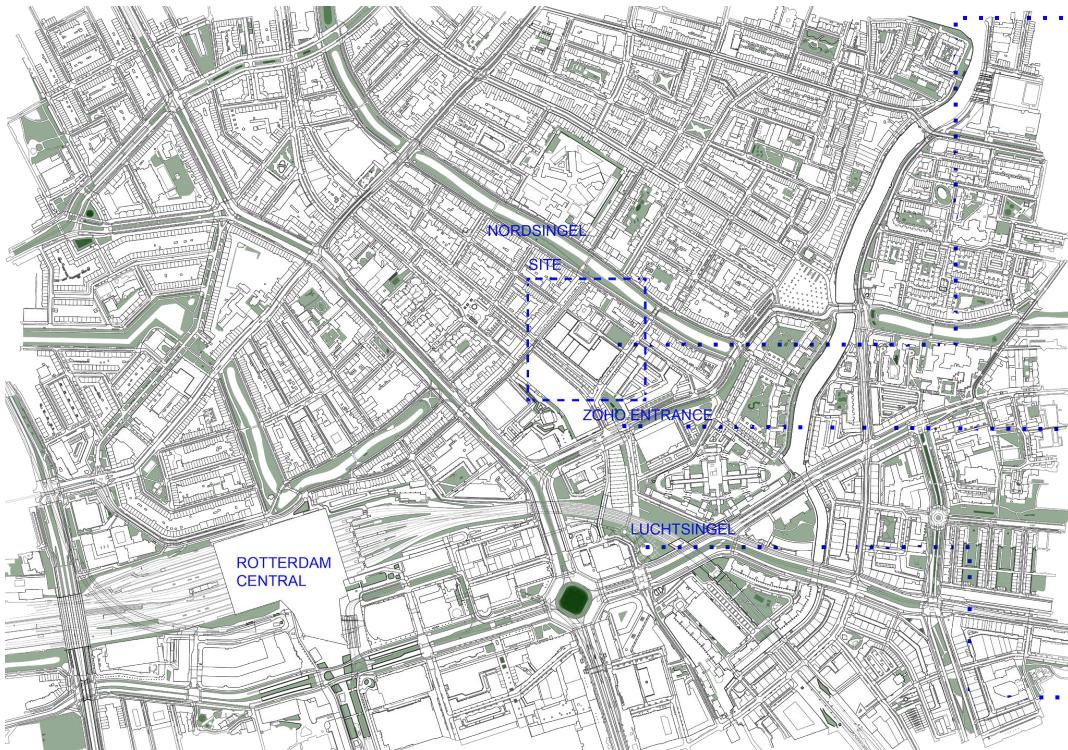
FLOWCHART



FLOWCHART: SPACE PLANNING



SITE ANALYSIS



DESIGN GOALS



CONNECTING GREEN AREAS

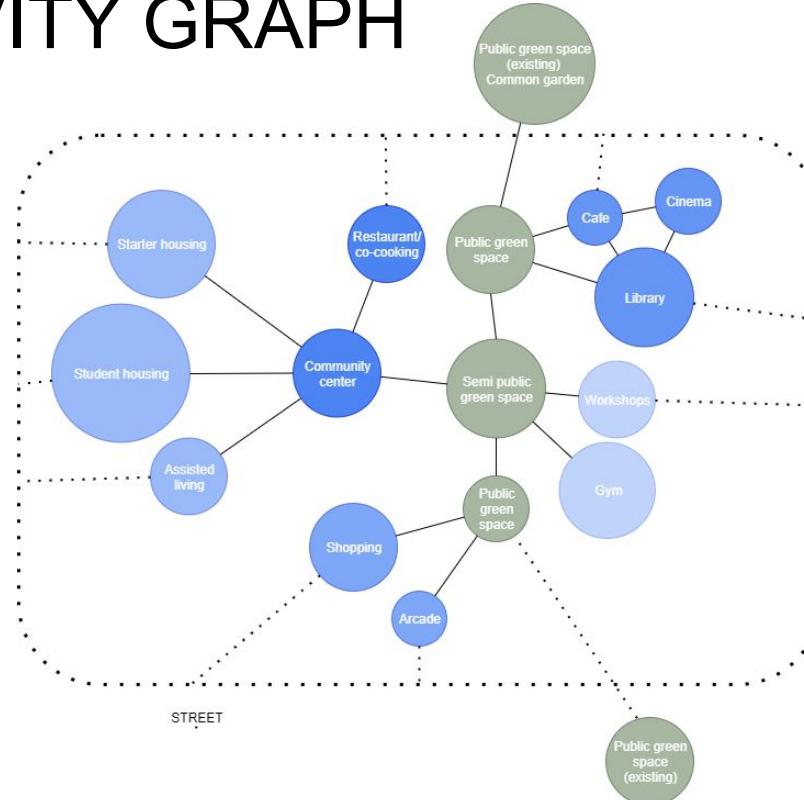


ATTRACT TO PLOT
WITH VISIBLE PUBLIC
FUNCTIONS



DIVISION BETWEEN PUBLIC
AND PRIVATE FUNCTIONS

CONNECTIVITY GRAPH



CONNECTIVITY CHART

	Workshop	Library	Cinema	Cafe/Pub	Arcade	Restaurant	Community Centre	General Shop	Gym	Si. Student Studios	Sh. Student Studio	St. Housing	As. Housing
Workshop	0	0	0	0	0	0	1	1	0	0	0	0	0
Library	0	0	1	1	0	0	1	0	0	1	1	1	1
Cinema	0	1	0	1	1	0	1	0	1	0	0	0	0
Cafe/Pub	0	1	1	0	0	1	0	0	0	0	0	0	0
Arcade	0	0	1	0	0	0	0	0	0	0	0	0	0
Restaurant	0	0	0	1	0	0	0	0	0	0	0	0	0
Community Centre	1	1	1	0	0	0	0	0	0	0	0	0	0
General Shop	1	0	0	0	0	0	0	0	0	0	0	0	0
Gym	0	0	1	0	0	0	0	0	0	0	0	0	0
Si. Student Studios	0	1	0	0	0	0	0	0	0	0	0	0	0
Sh. Student Studios	0	1	0	0	0	0	0	0	0	0	0	0	0
St. Housing	0	1	0	0	0	0	0	0	0	0	0	0	0
As. Housing	0	1	0	0	0	0	0	0	0	0	0	0	0

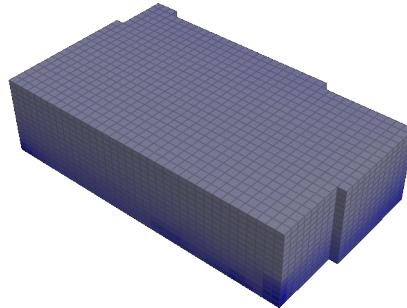
PROGRAM OF REQUIREMENTS

	Daylight	Noise	Visibility	Ground floor	Higher floor	Area
Workshop	0.8	0.5	0.5	0.5	0	150
Library	0.5	0.3	0.8	0.8	0	200
Cinema	0.1	0.8	0.9	0	0	400
Cafe/Pub	0.5	1	0.3	1	0	80
Arcade	0.1	1	0.5	0	0	100
Restaurant	0.4	1	0.8	1	0	150
Community Centre	0.6	1	0.4	1	0	2460
General shop	0.1	1	0.9	1	0	150
Gym	0.3	1	0	0	0.8	1300
Single student studio's (40)	1	0.3	0	0	1	1320
Shared student studio's (40)	1	0.4	0	0	0	8000
Starters housing (100)	1	0.1	0	0	0	1800
Assisted housing (30)	1	0.1	0	0	1	1800

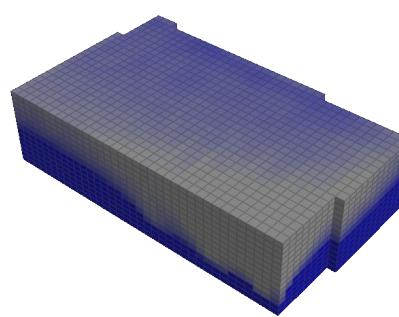
ENVIRONMENT ANALYSIS

■ Much

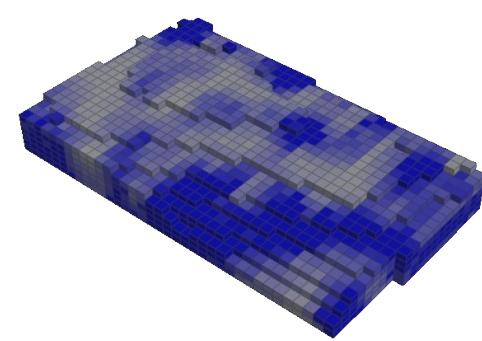
■ Less



Daylight

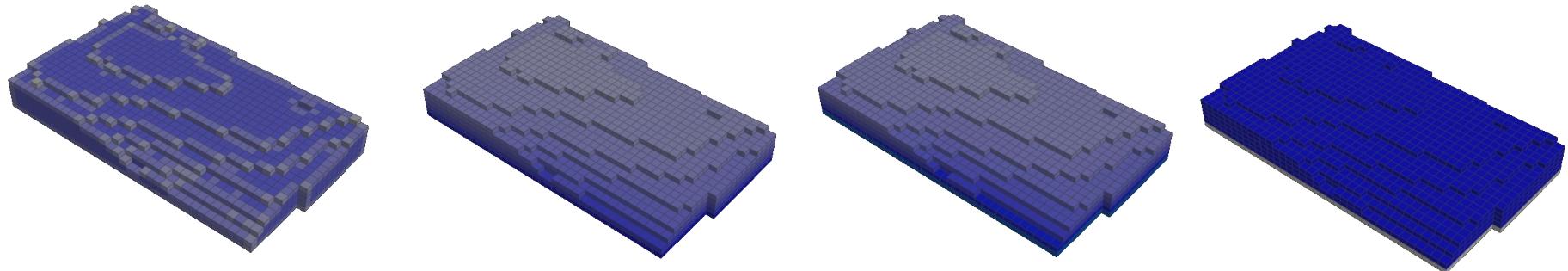


Obscurity



Noise

ANALYSIS OF BUILDING ENVELOPE



Visibility

Visible placement

Hidden placement

Ground floor

Away from ground floor

Closer to ground floor

First floor

Away from first floor

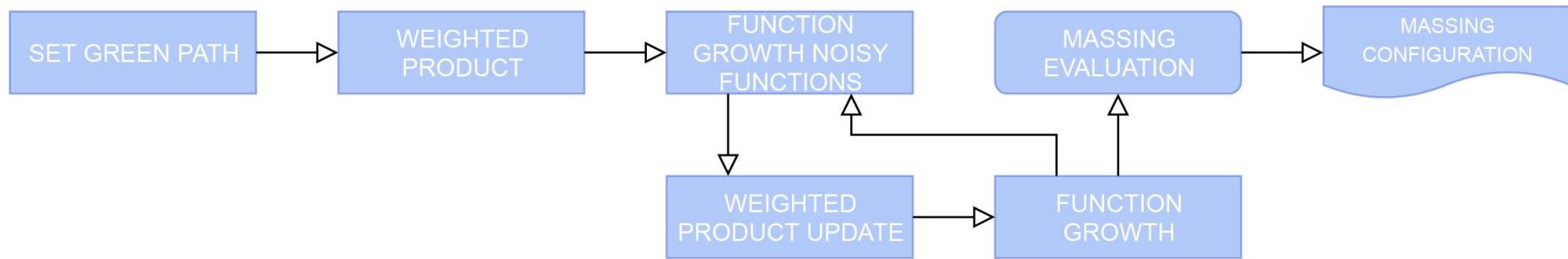
Closer to first floor

Higher floors

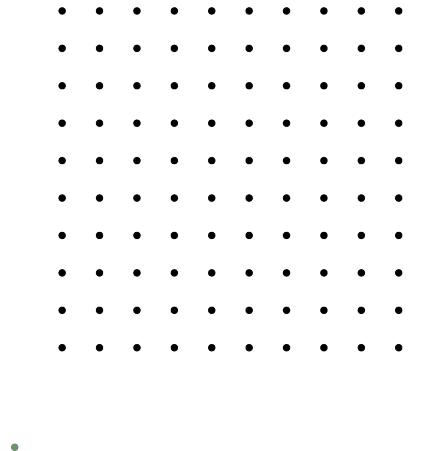
Away from higher floor

Higer floors

FLOWCHART: MASSING

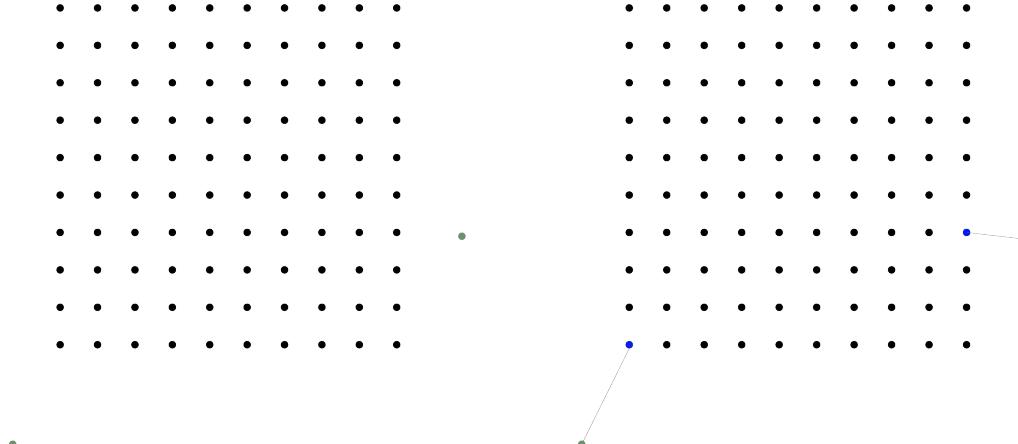


SETTING UP GREEN PATH



- 1) Get centroids of green areas

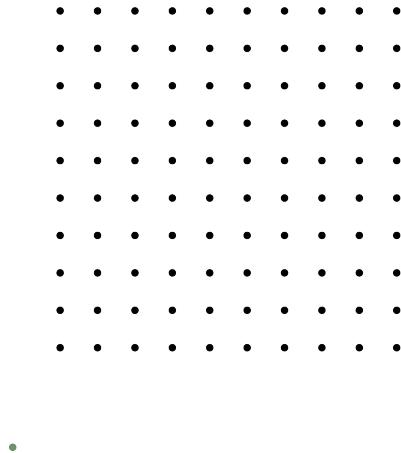
SETTING UP GREEN PATH



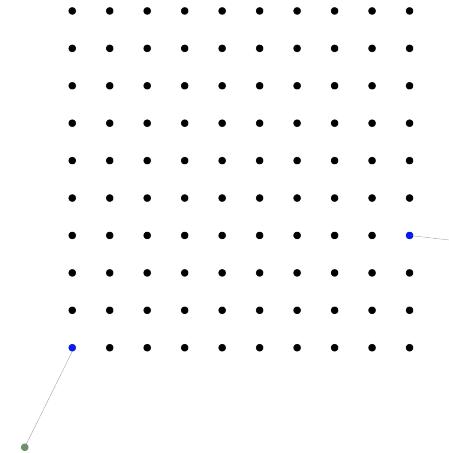
1) Get centroids of green areas

2) Connect to nearest point. Store start and end.

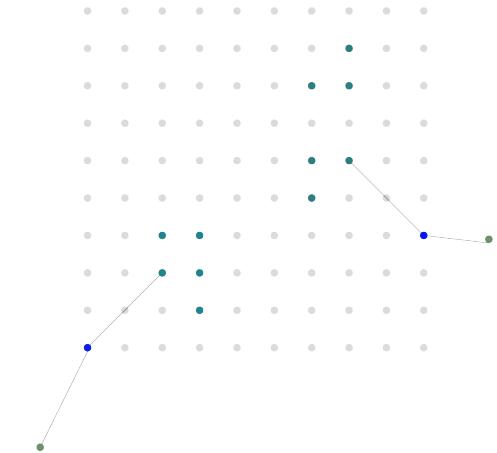
SETTING UP GREEN PATH



1) Get centroids of green areas

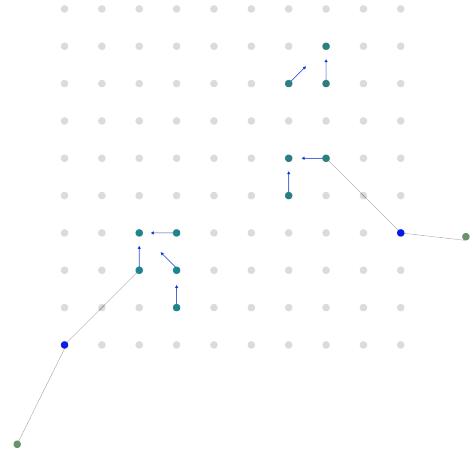


2) Connect to nearest point. Store start and end.



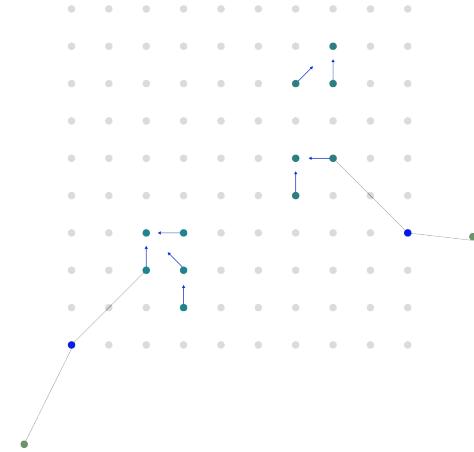
3) Connect to nearest quiet voxel

SETTING UP GREEN PATH

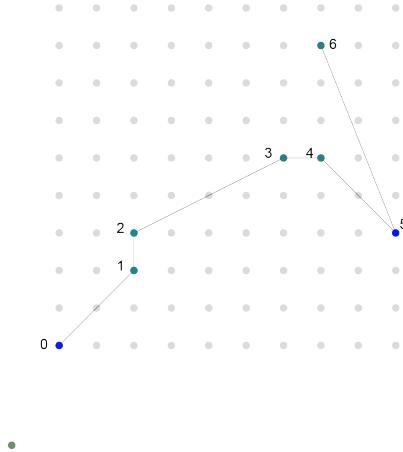


4) Point at most quiet voxel in neighbourhood

SETTING UP GREEN PATH

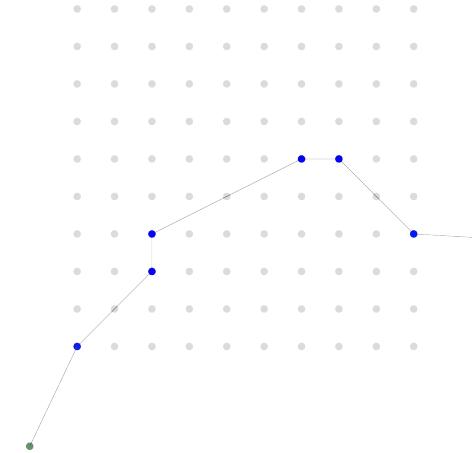
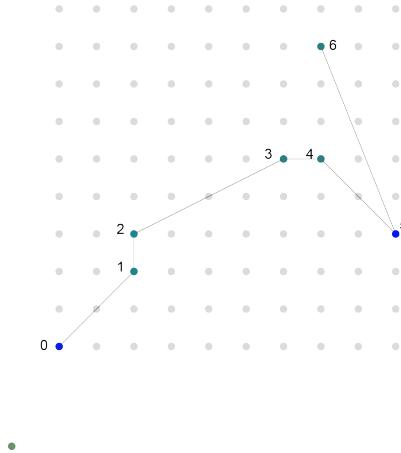
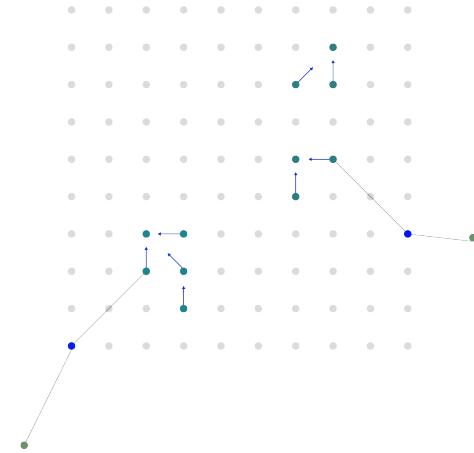


4) Point at most quiet voxel in neighbourhood

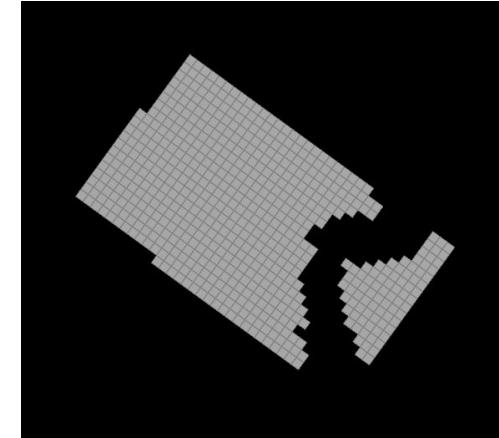
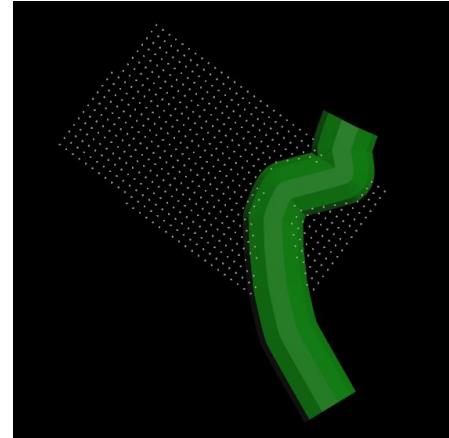
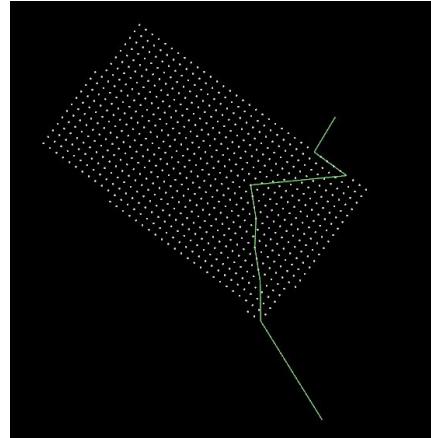


5) Sort by distance and add prim and cut at end.

SETTING UP GREEN PATH

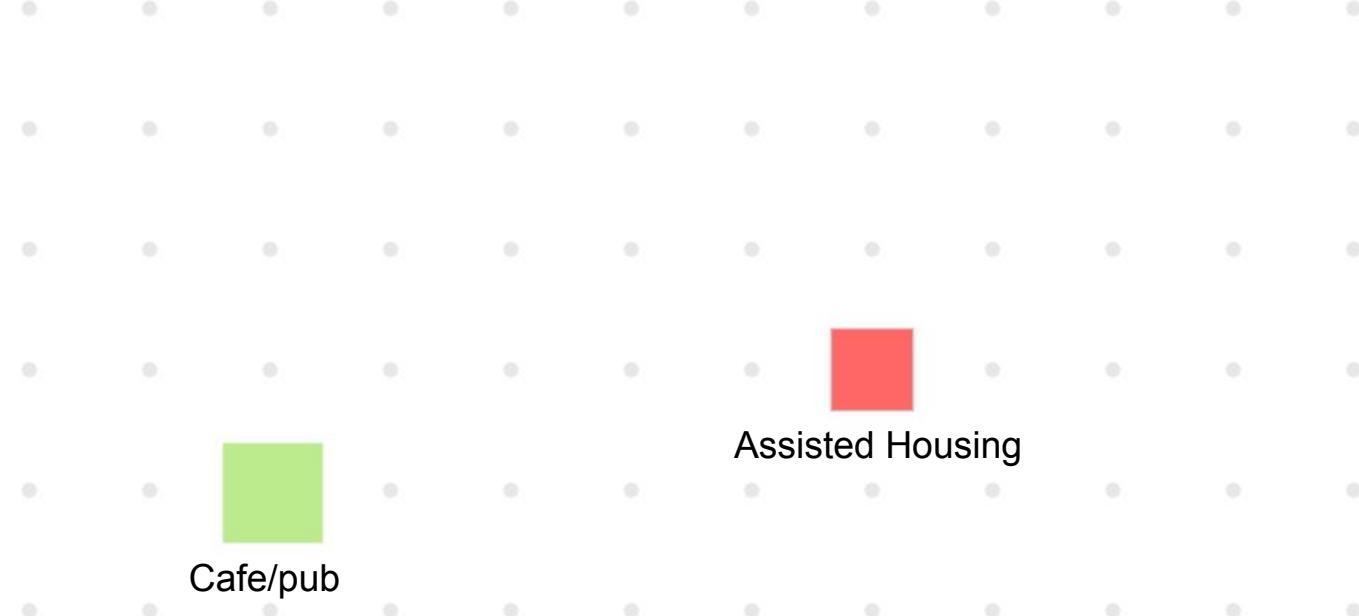


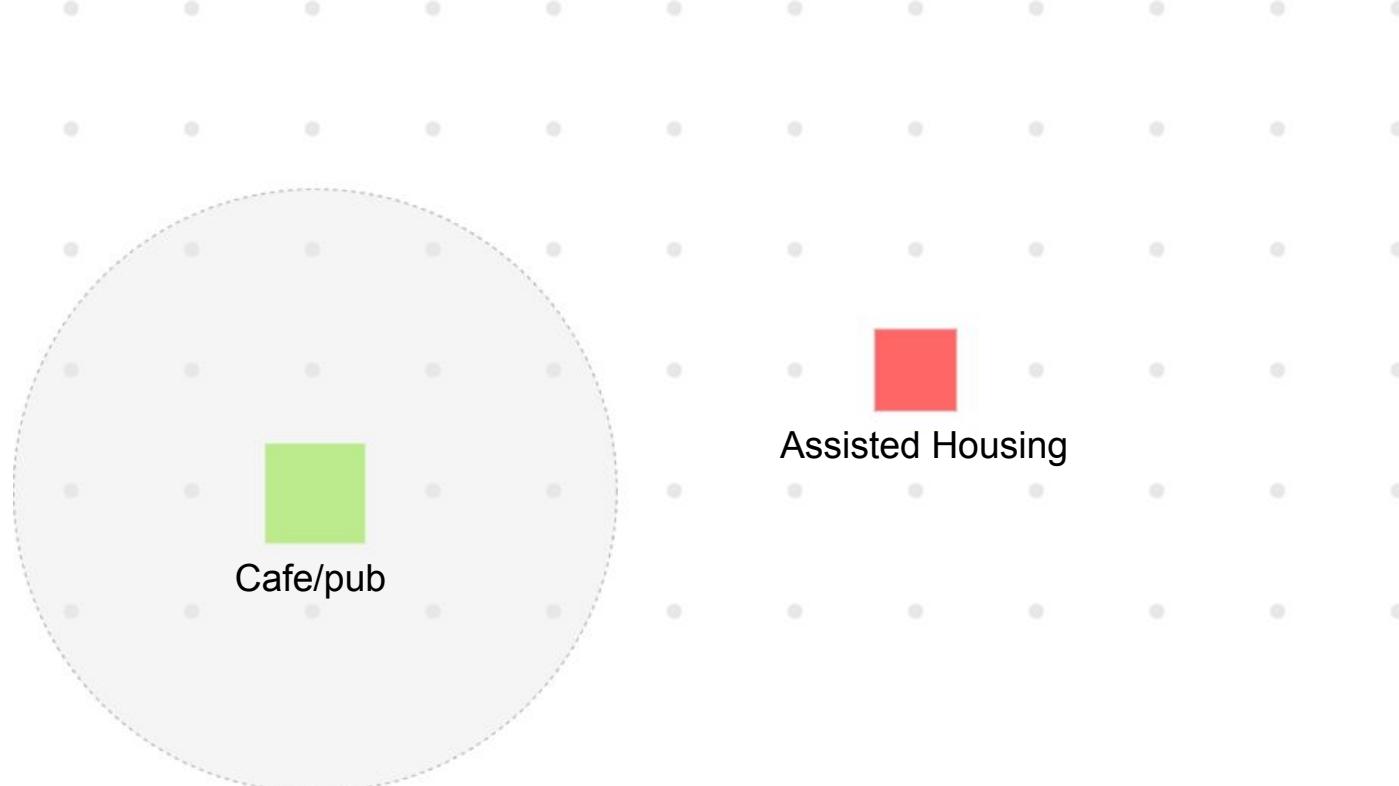
SETTING UP GREEN PATH

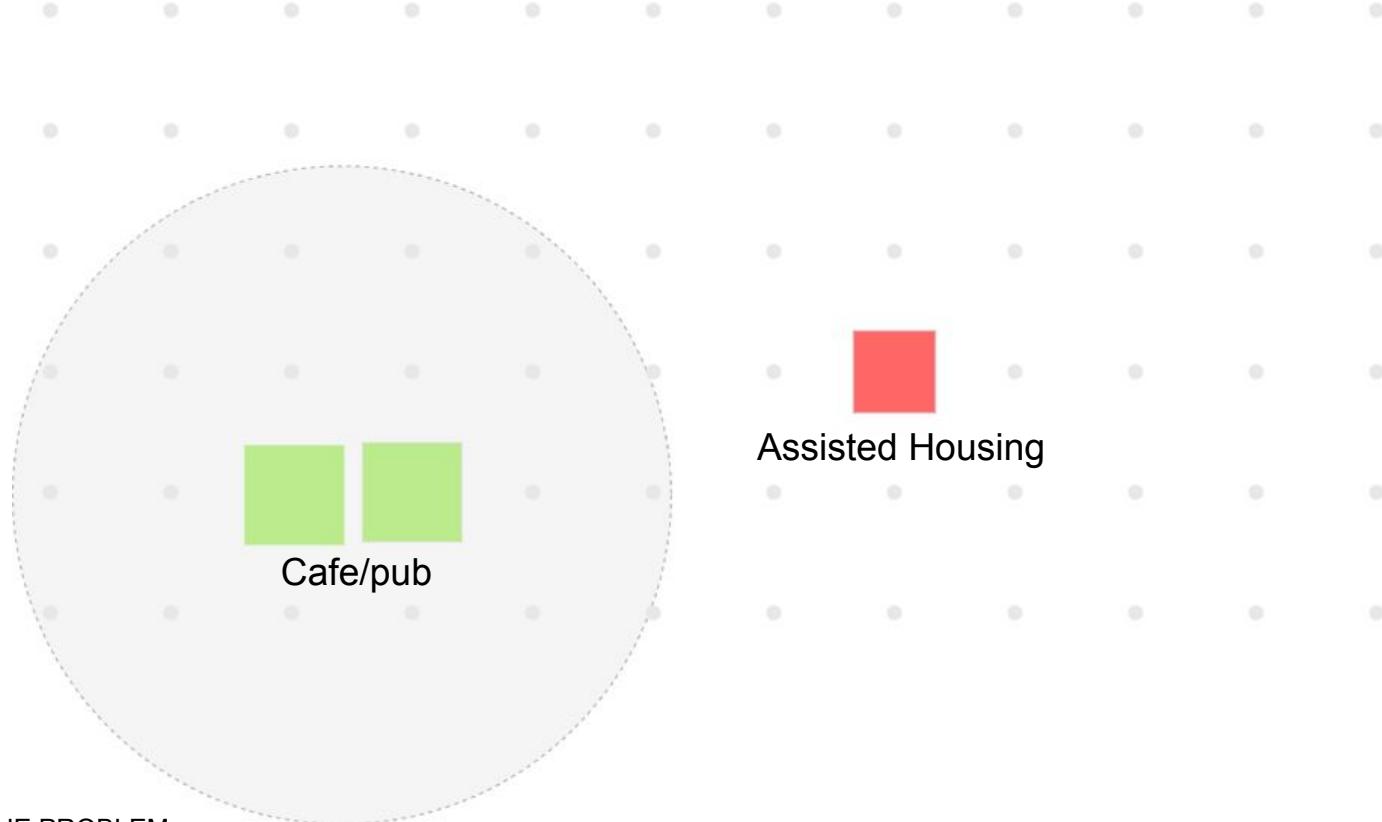


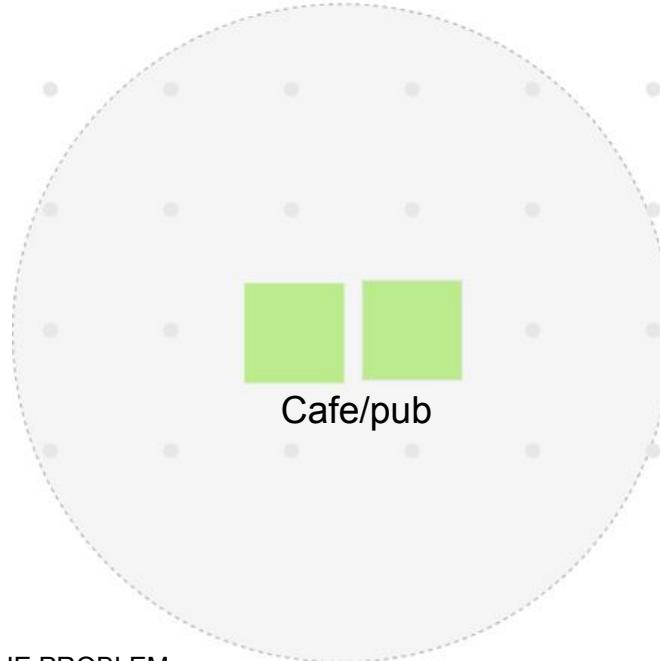
“A 5-step strategy to a dynamic space agent approach”

Disclaimer: not based on scientific literature
research





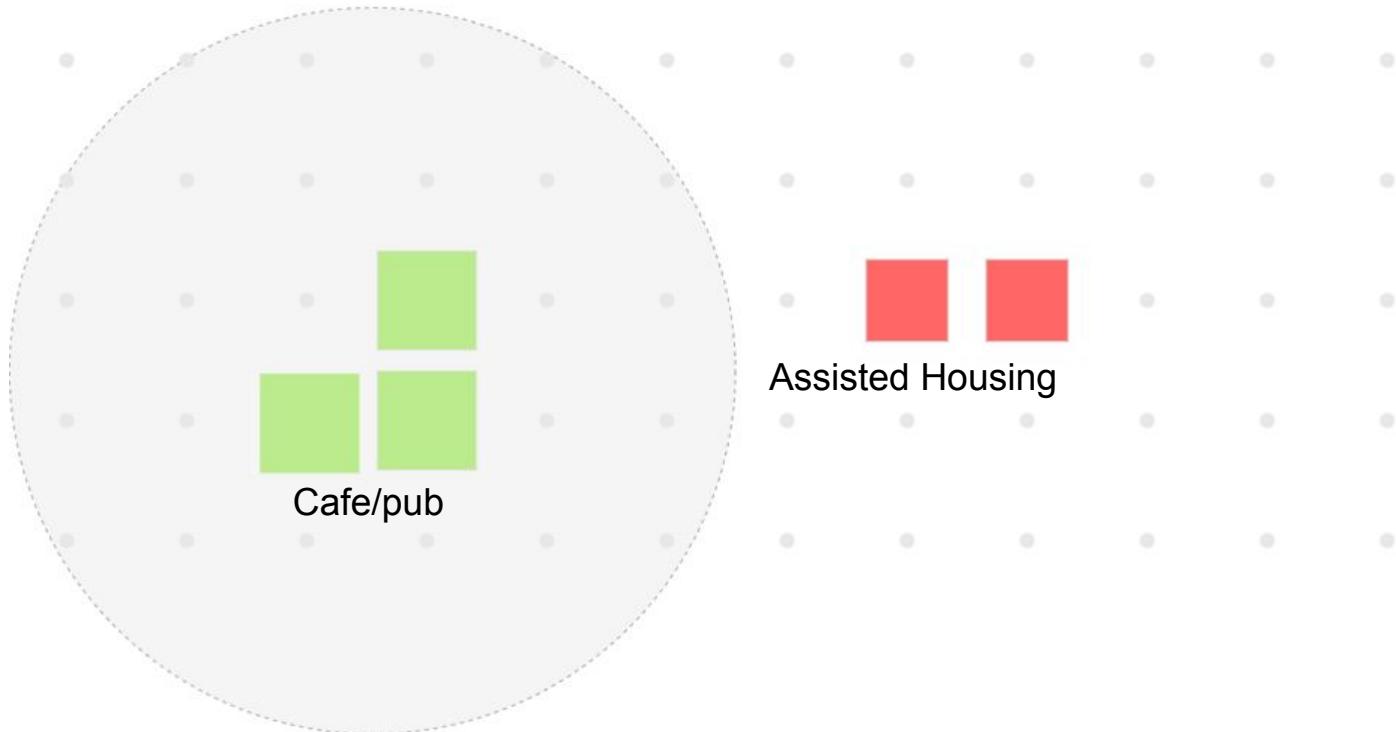


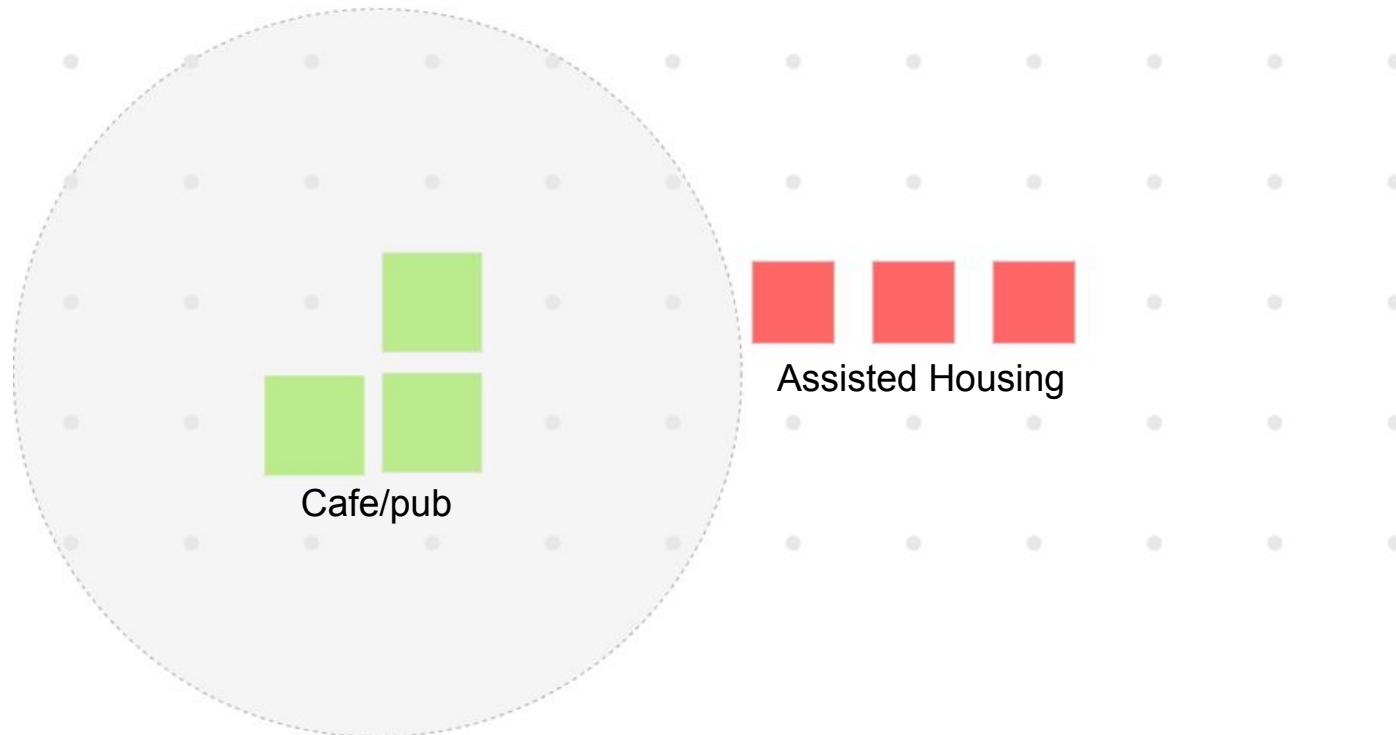


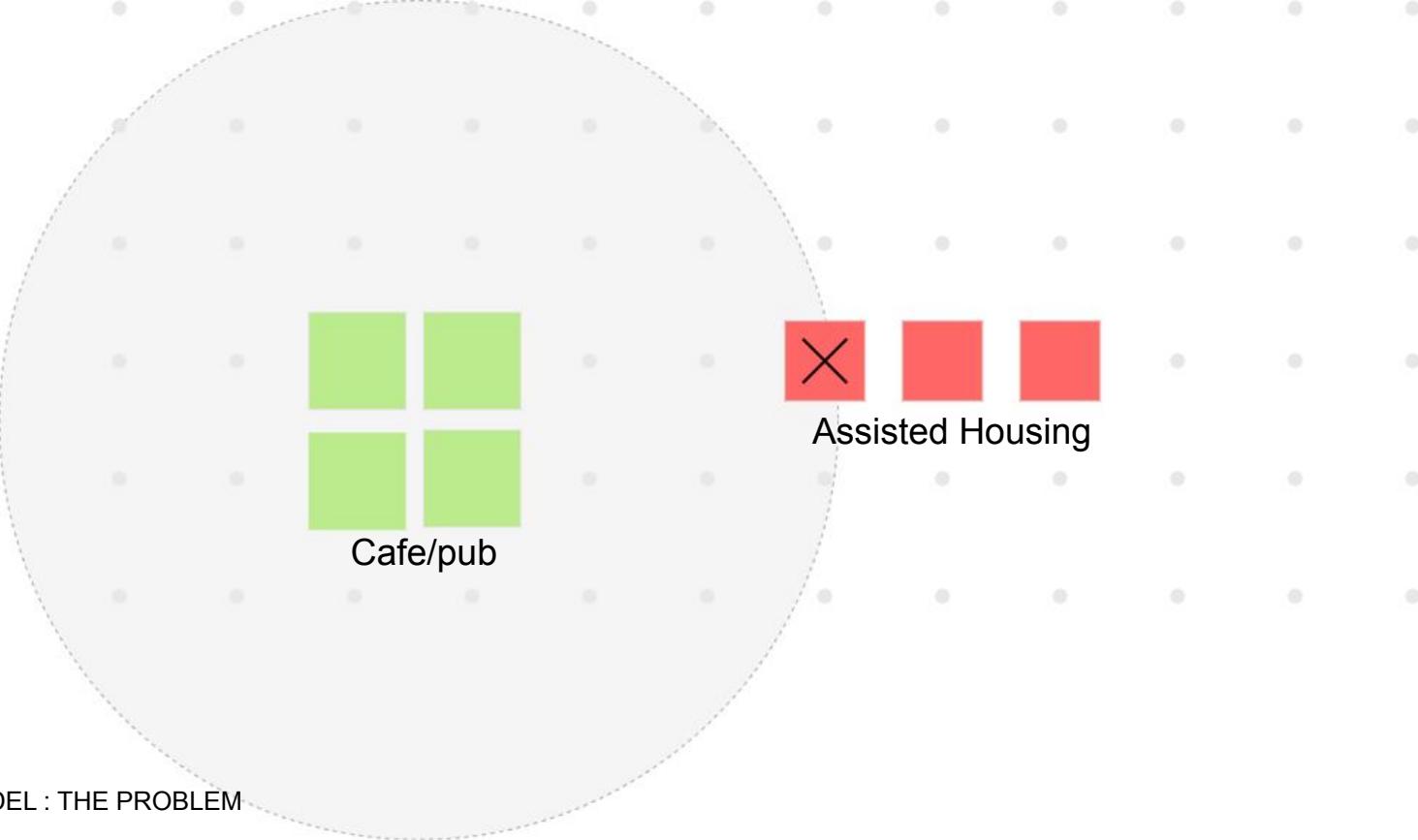
Cafe/pub

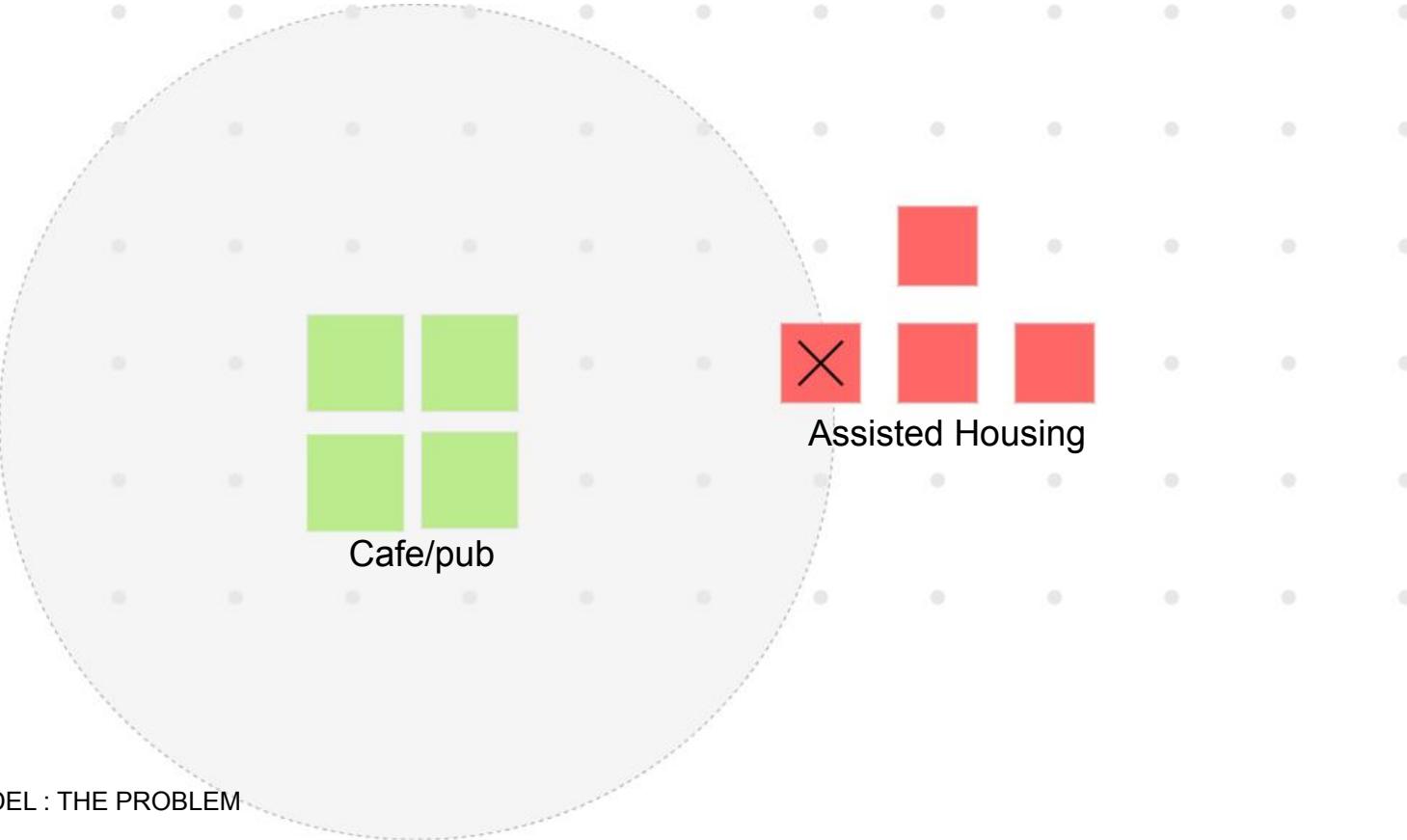


Assisted Housing

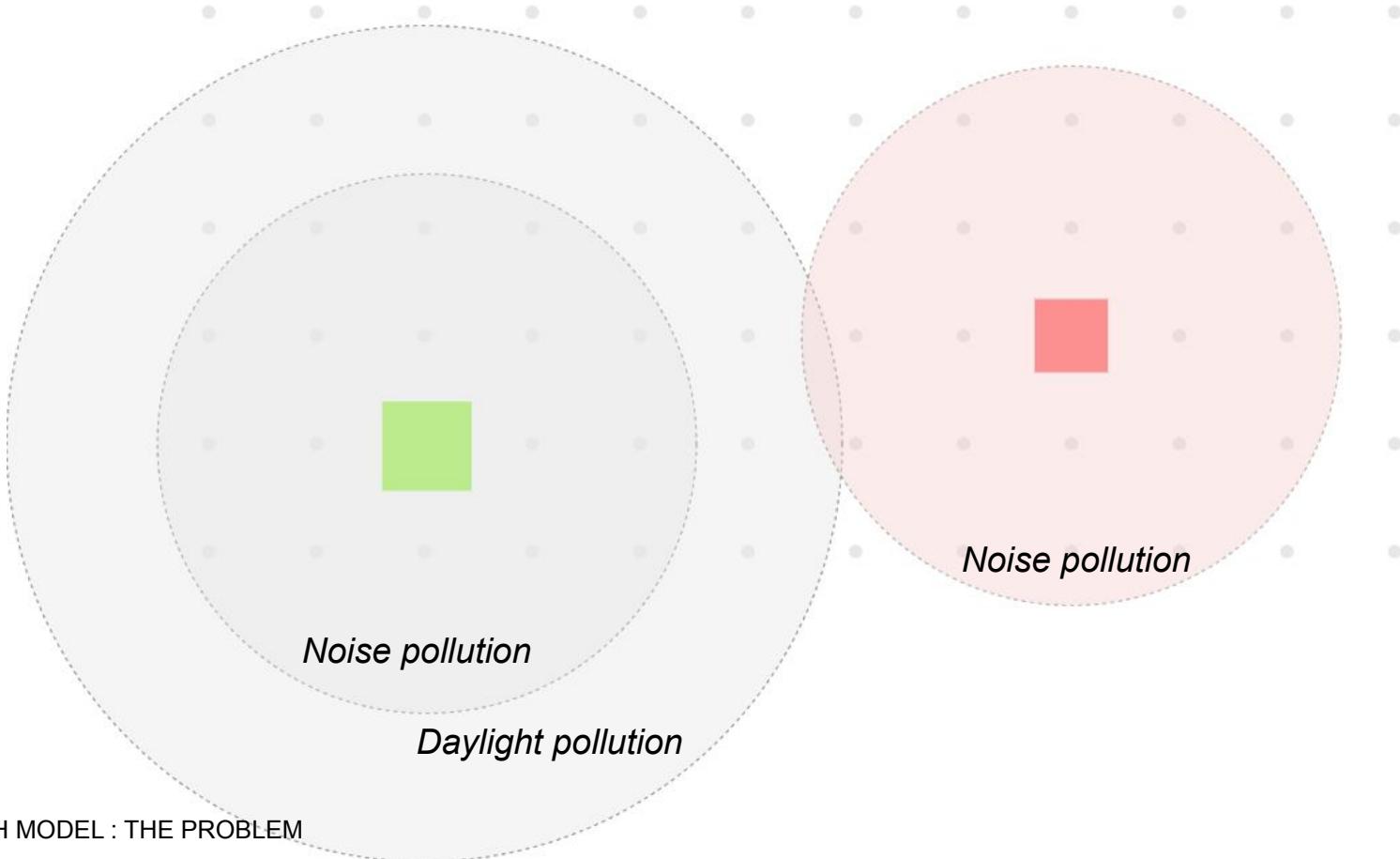


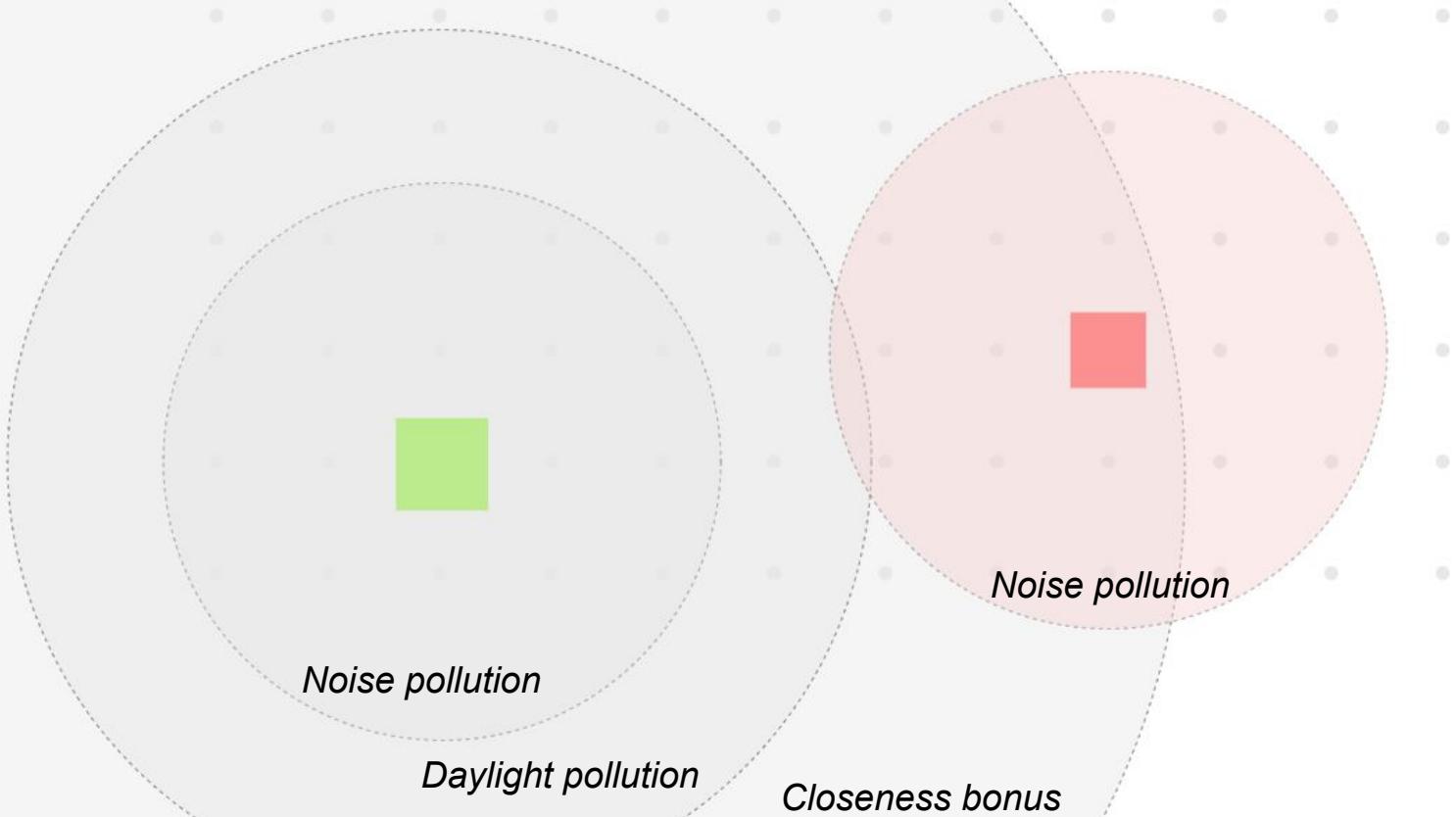


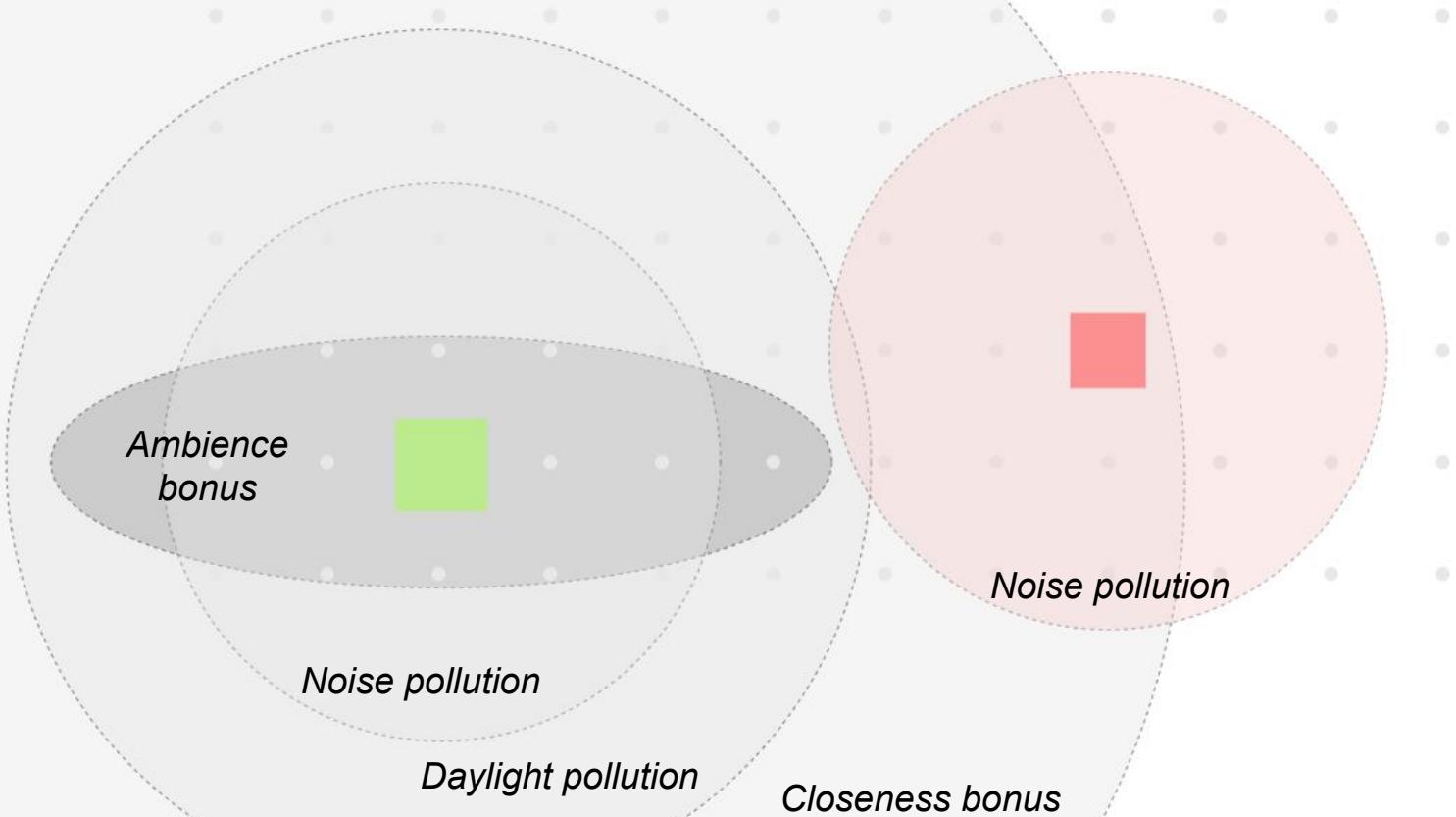






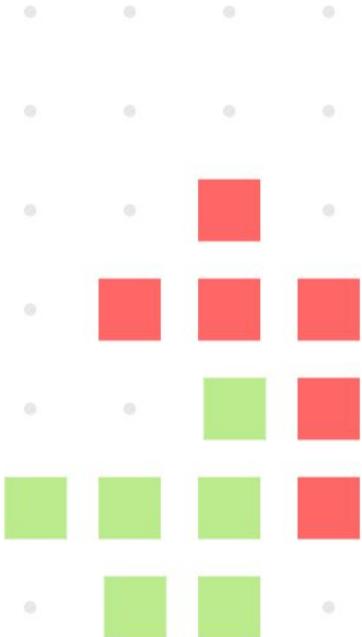






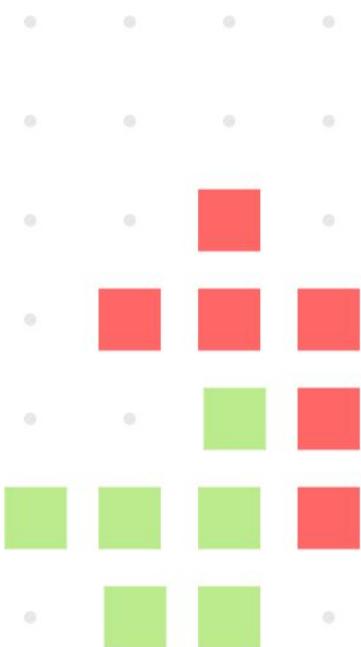
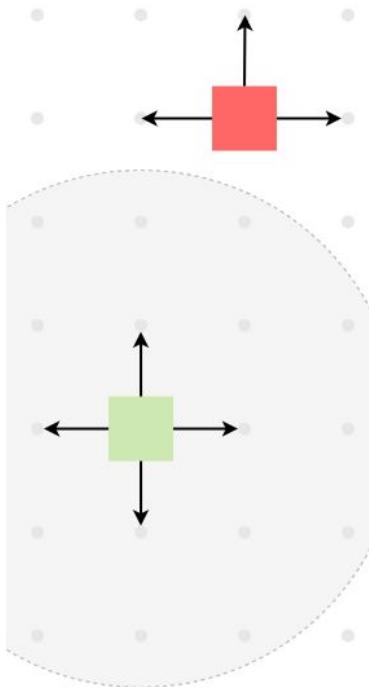
The solution: a dynamic space agent model

Step 1



A lineair space agent model

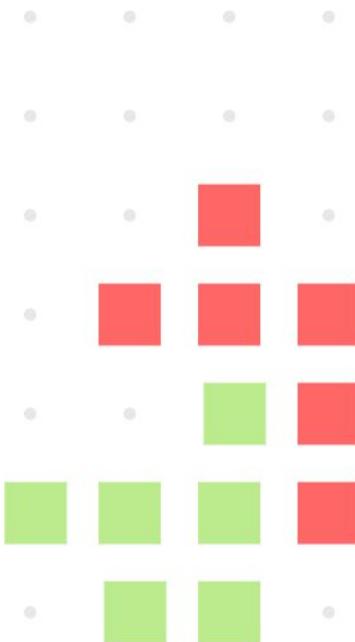
- no influence on each other-
- prioritizing by function order -

Step 1**Step 2****A lineair space agent model**

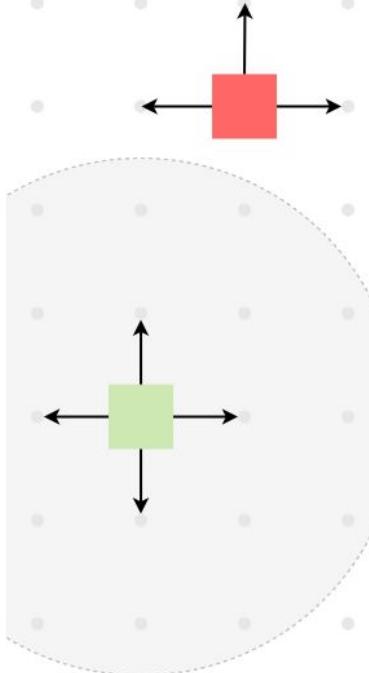
- no influence on each other-
- prioritizing by function order -

WP - influencing model

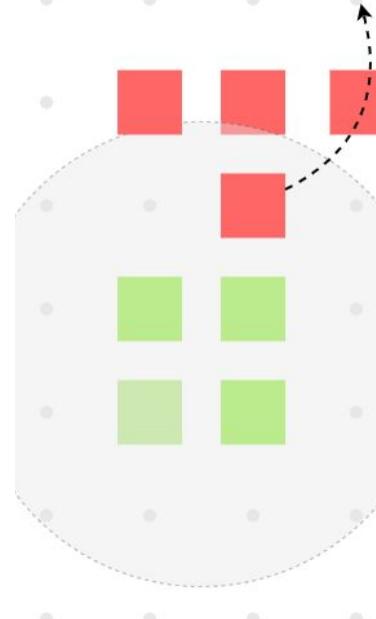
- influence surrounding voxels-
- noisy functions prioritized -

Step 1**A lineair space agent model**

- no influence on each other -
- prioritizing by function order -

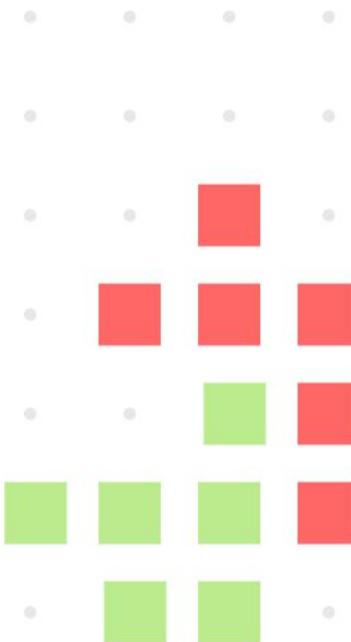
Step 2**WP - influencing model**

- influence surrounding voxels -
- noisy functions prioritized -

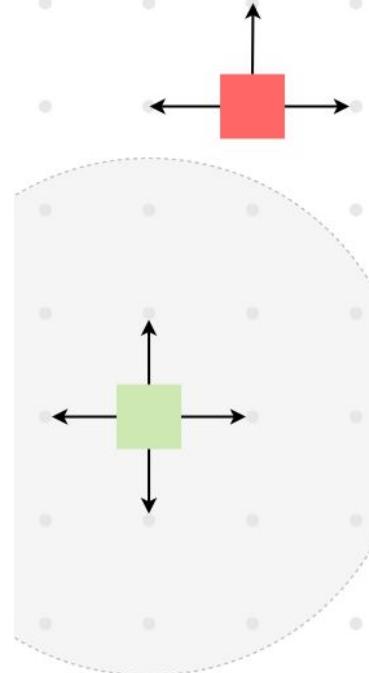
Step 3**Child-replace model**

- initial placement noisy prioritized -
- prioritizing can be randomized -

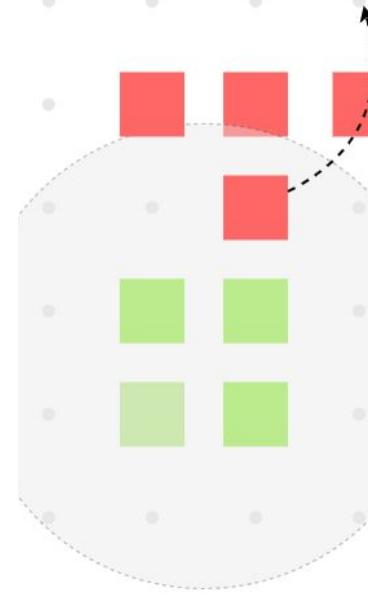
Optional way to do this: choose cause or consequence replacement

Step 1**A lineair space agent model**

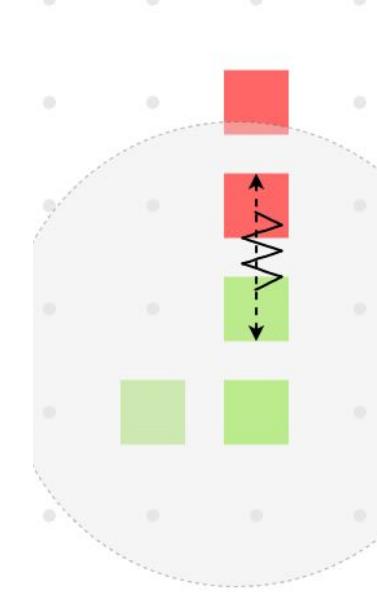
- no influence on each other -
- prioritizing by function order -

Step 2**WP - influencing model**

- influence surrounding voxels -
- noisy functions prioritized -

Step 3**Child-replace model**

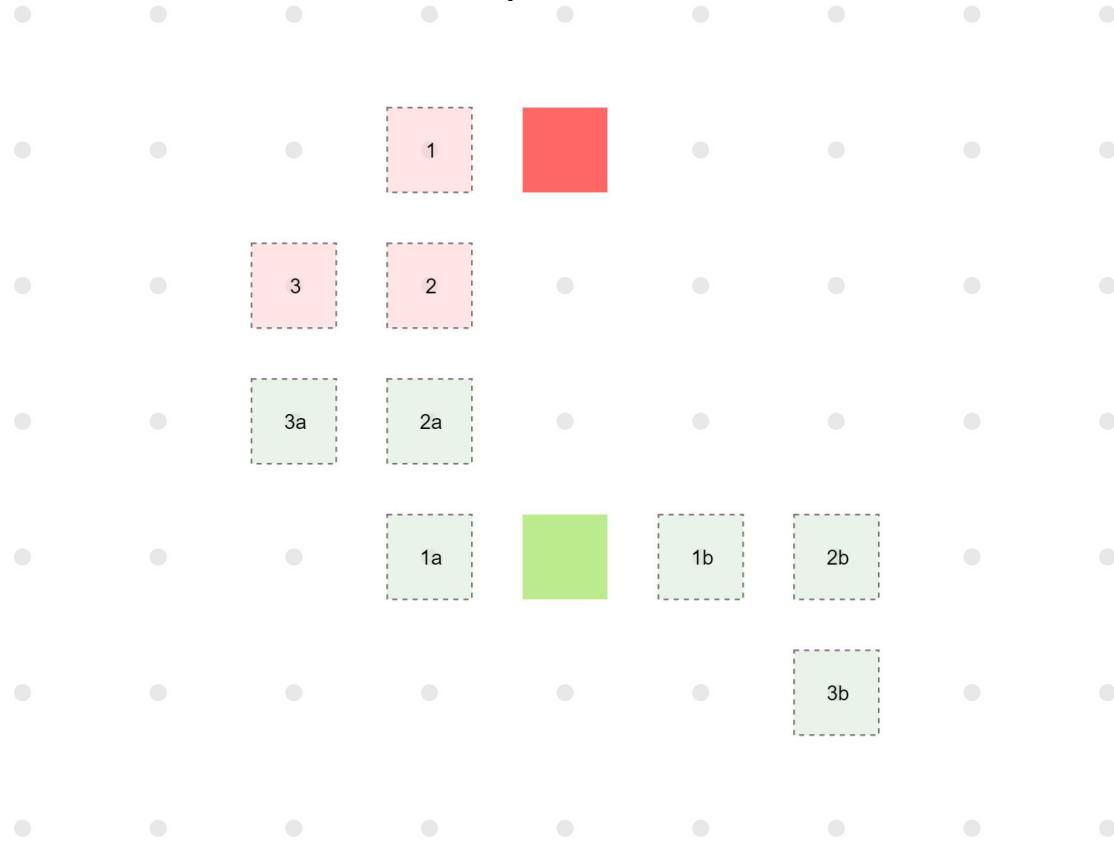
- initial placement noisy prioritized -
- prioritizing can be randomized -

Step 4**Spring model**

- Based on overall best setup -
- no prioritizing-

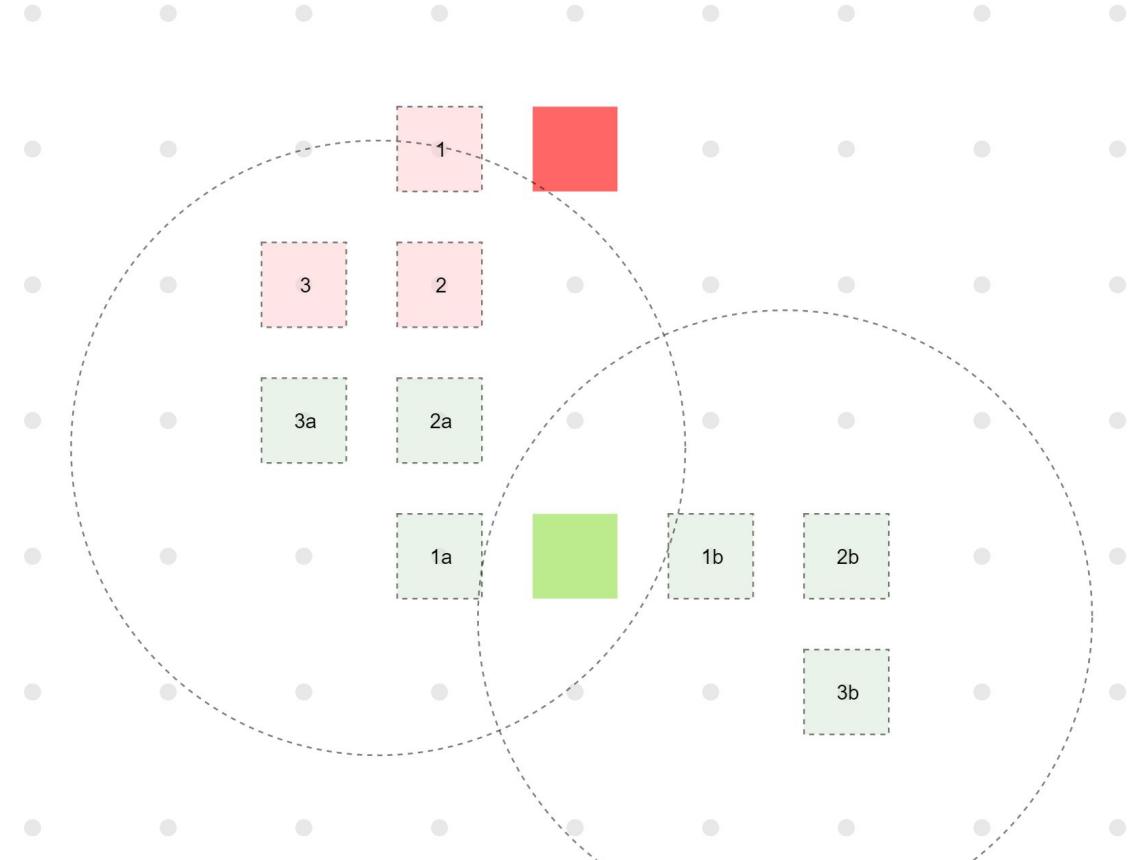
Optional way to do this: choose cause or consequence replacement

Optional way to do this: mass WP addition

Step 5**Dynamic model**

- Iterate over lower WP options -
- no prioritizing-
- Only specific pollution type spring models -

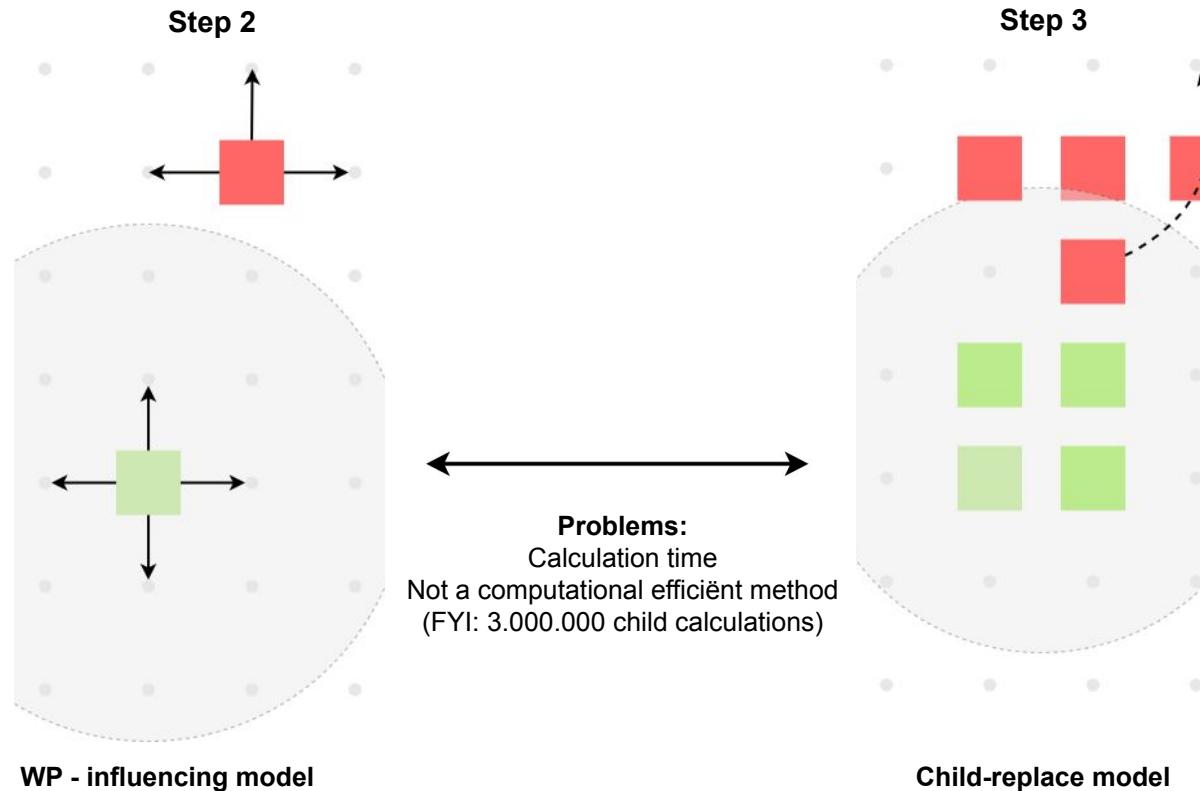
Optional way to do this: mass WP addition && initialized spring pollution && pre-defined lower WP iterations

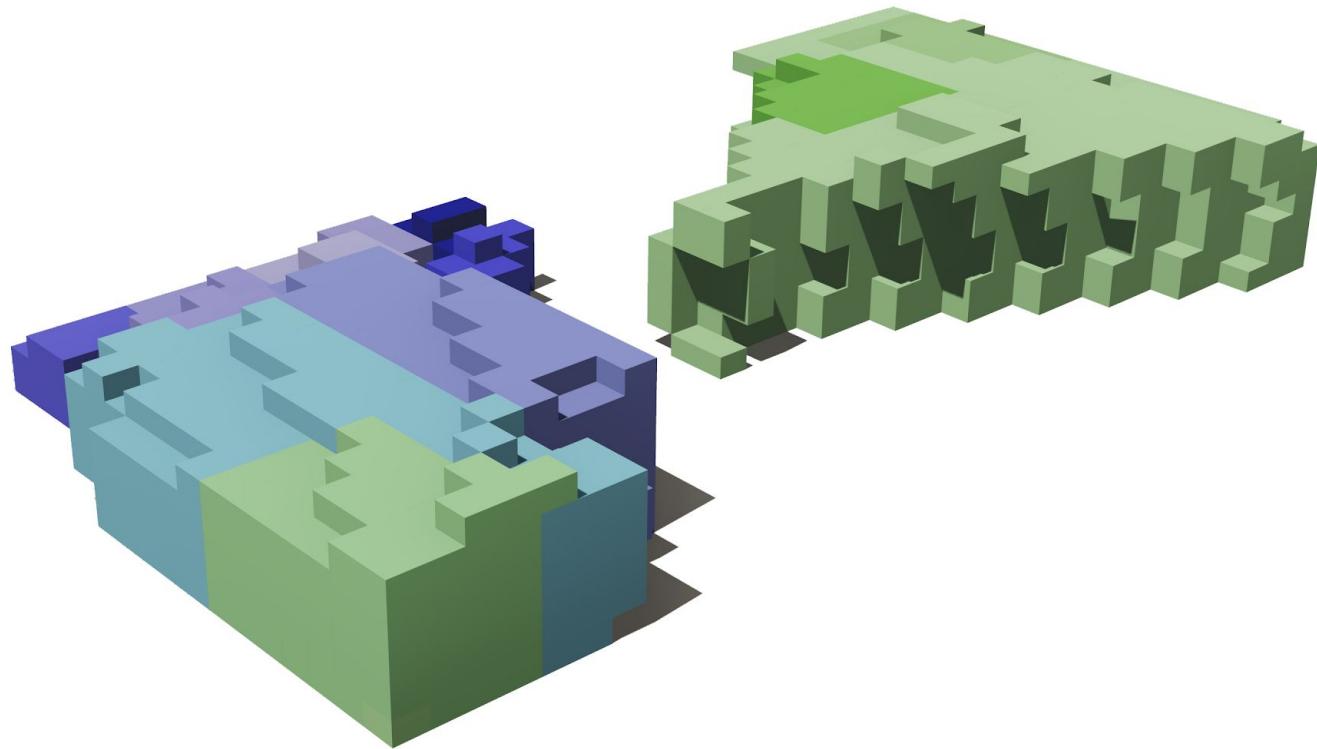
Step 5**Dynamic model**

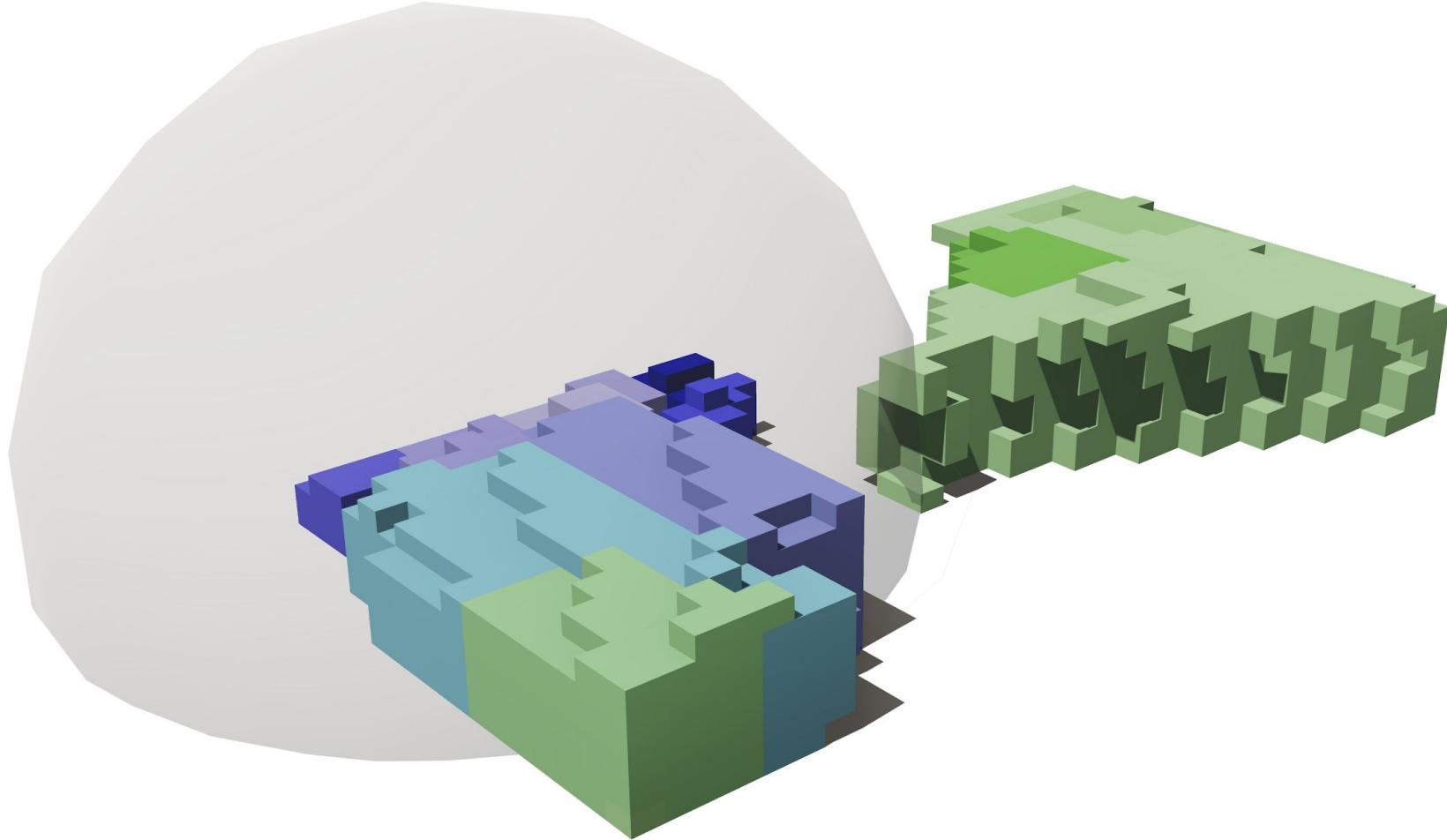
Winning model in this case for two lower-WP iteration and no spring model initialized:

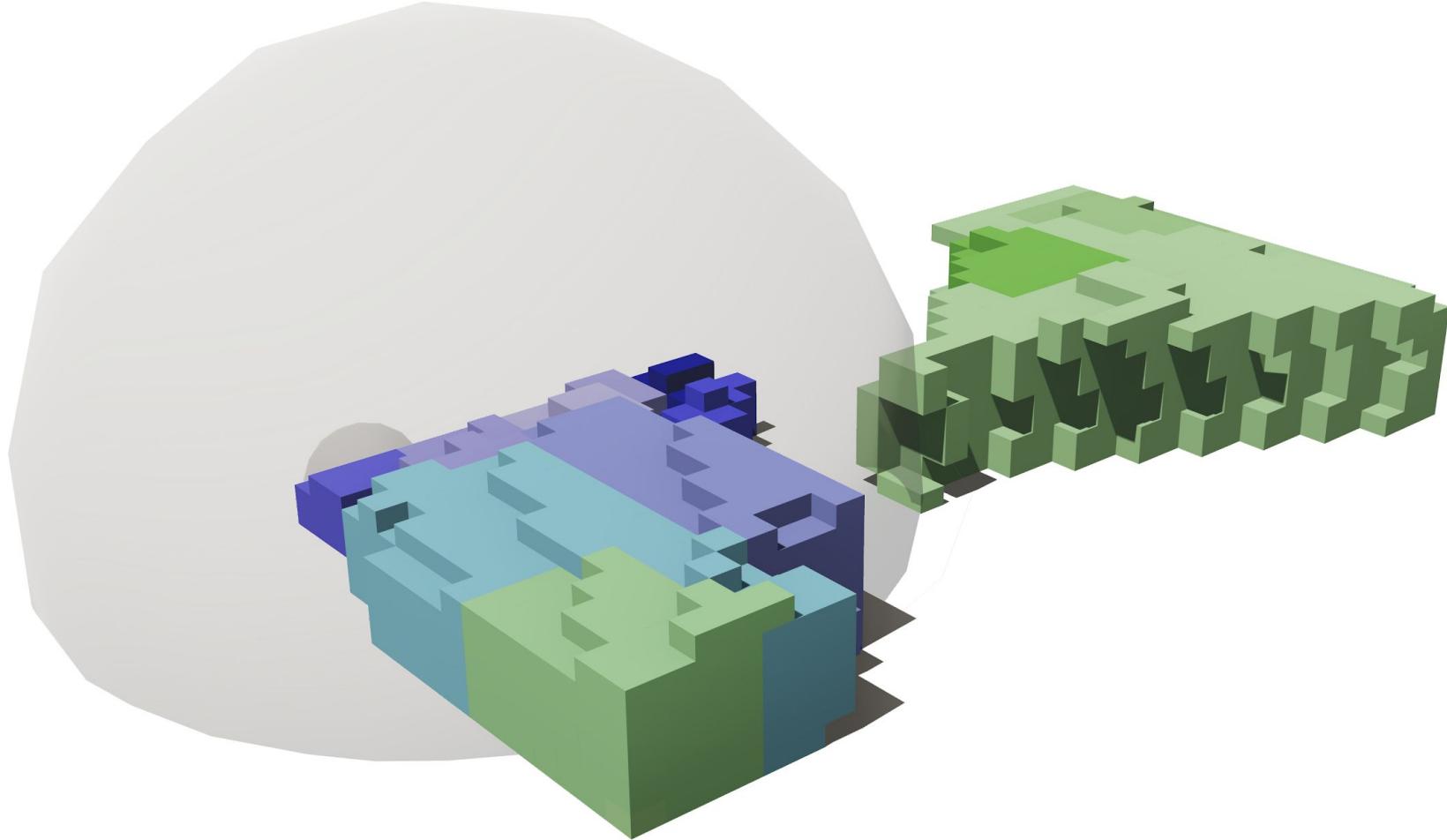
Version B

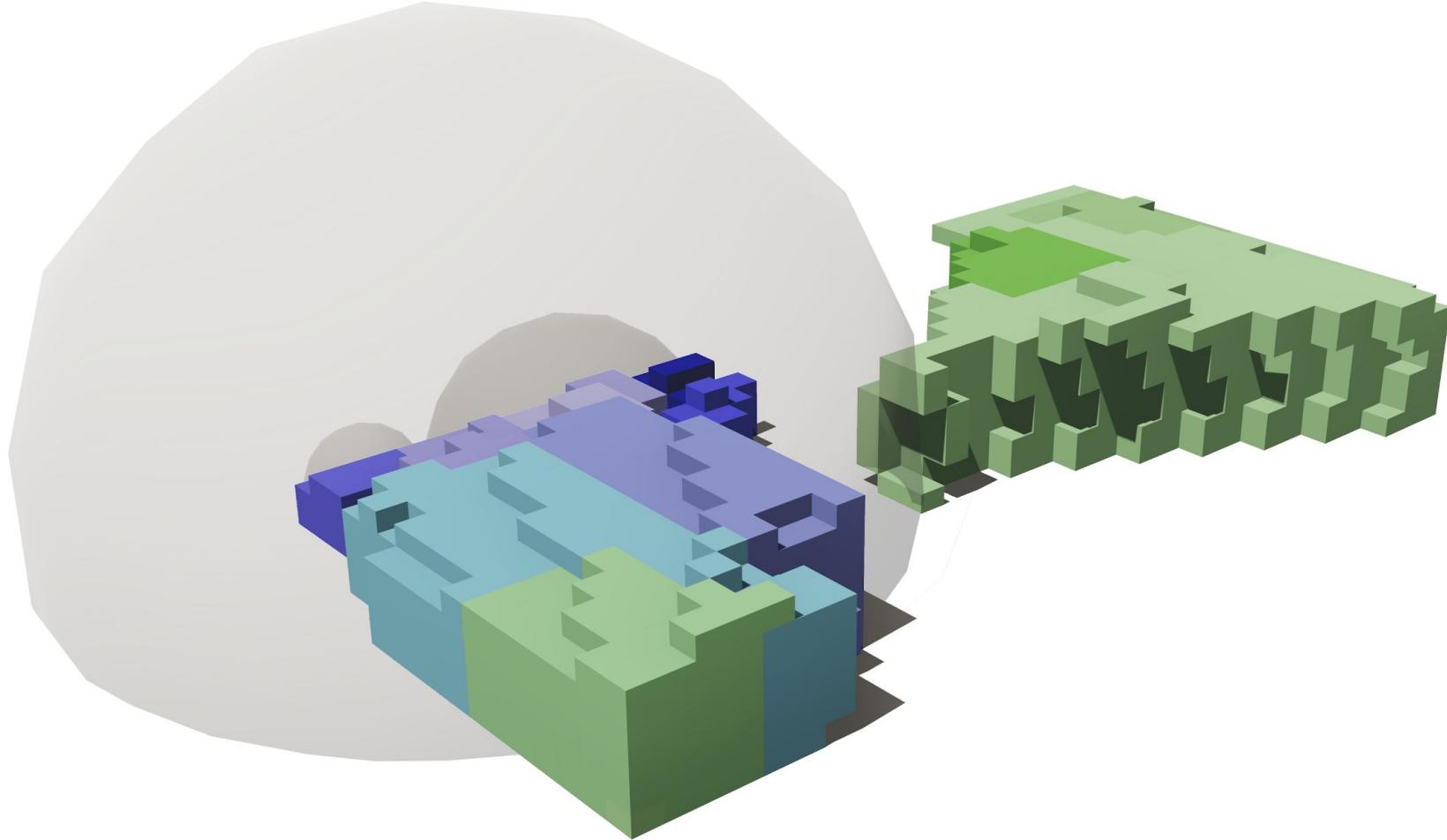
DYNAMIC GROWTH MODEL RESULTS

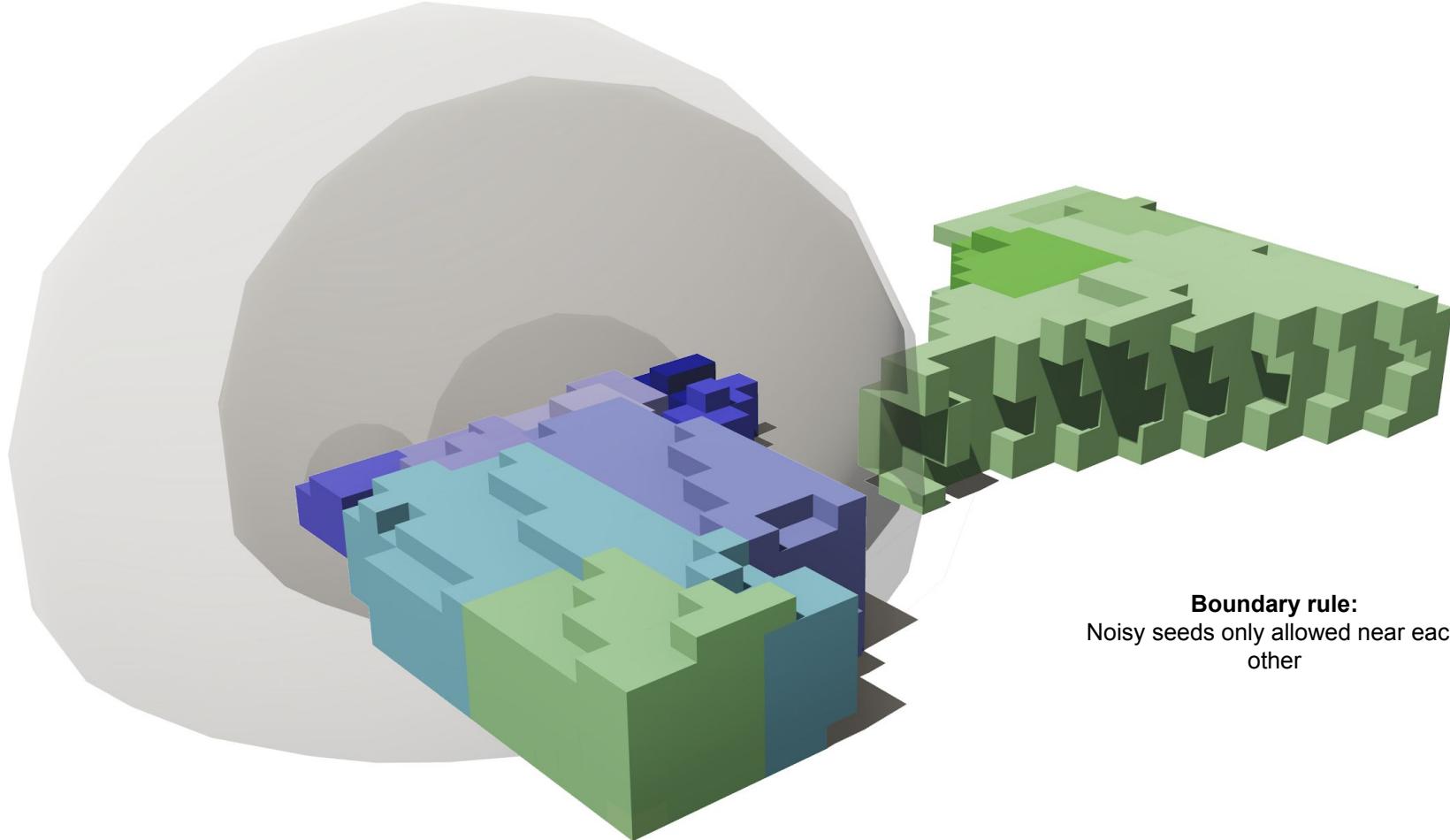












Boundary rule:
Noisy seeds only allowed near each other

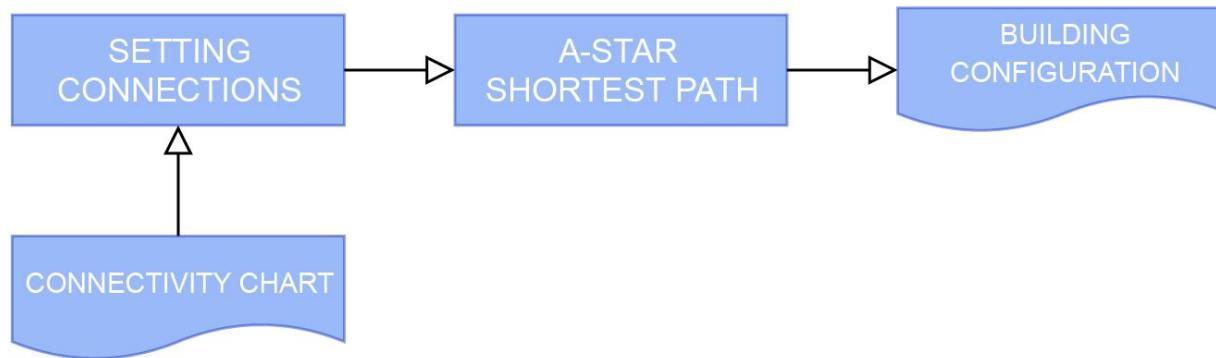
CONCLUSIONS

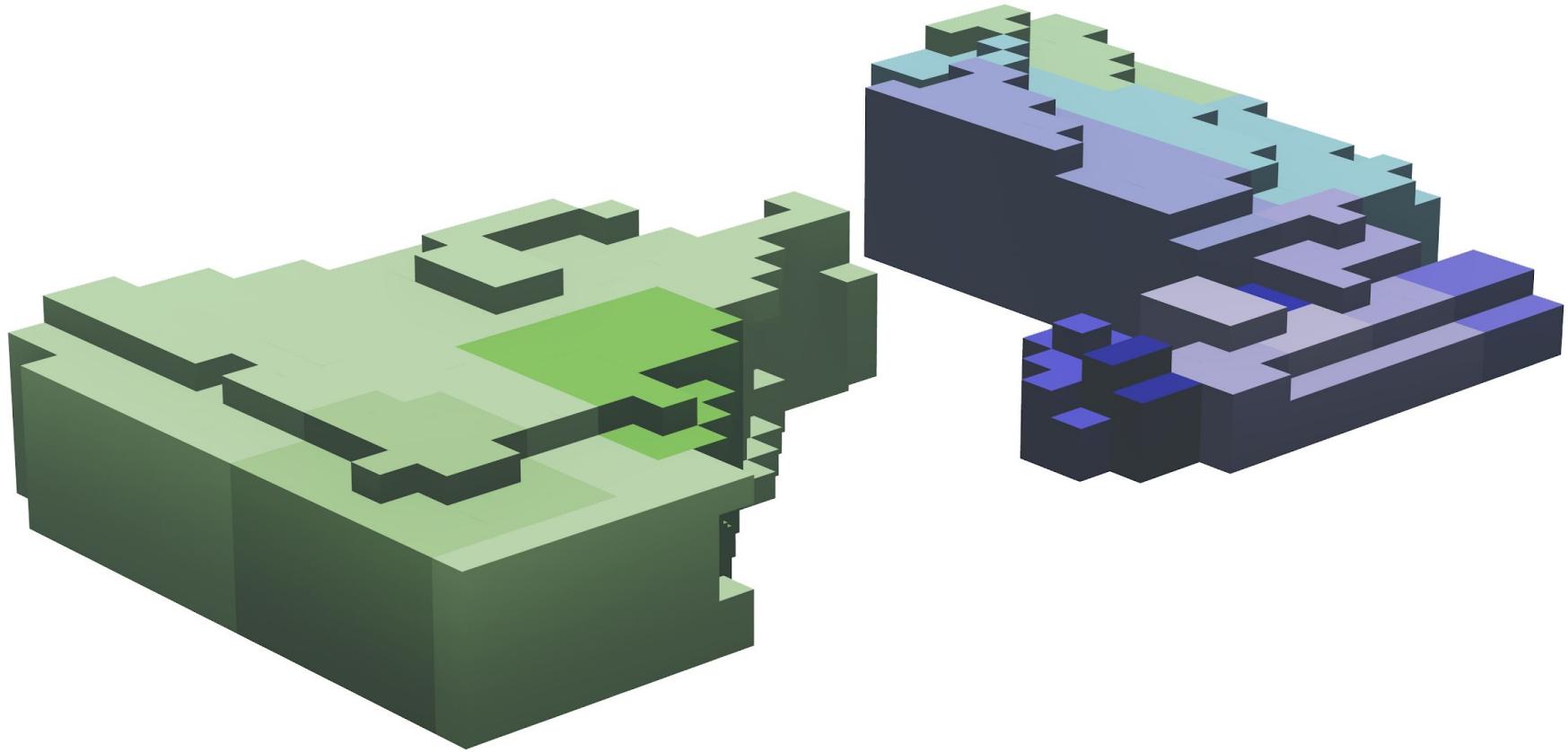
Easier semi-dynamic models always have a prioritizing problem;

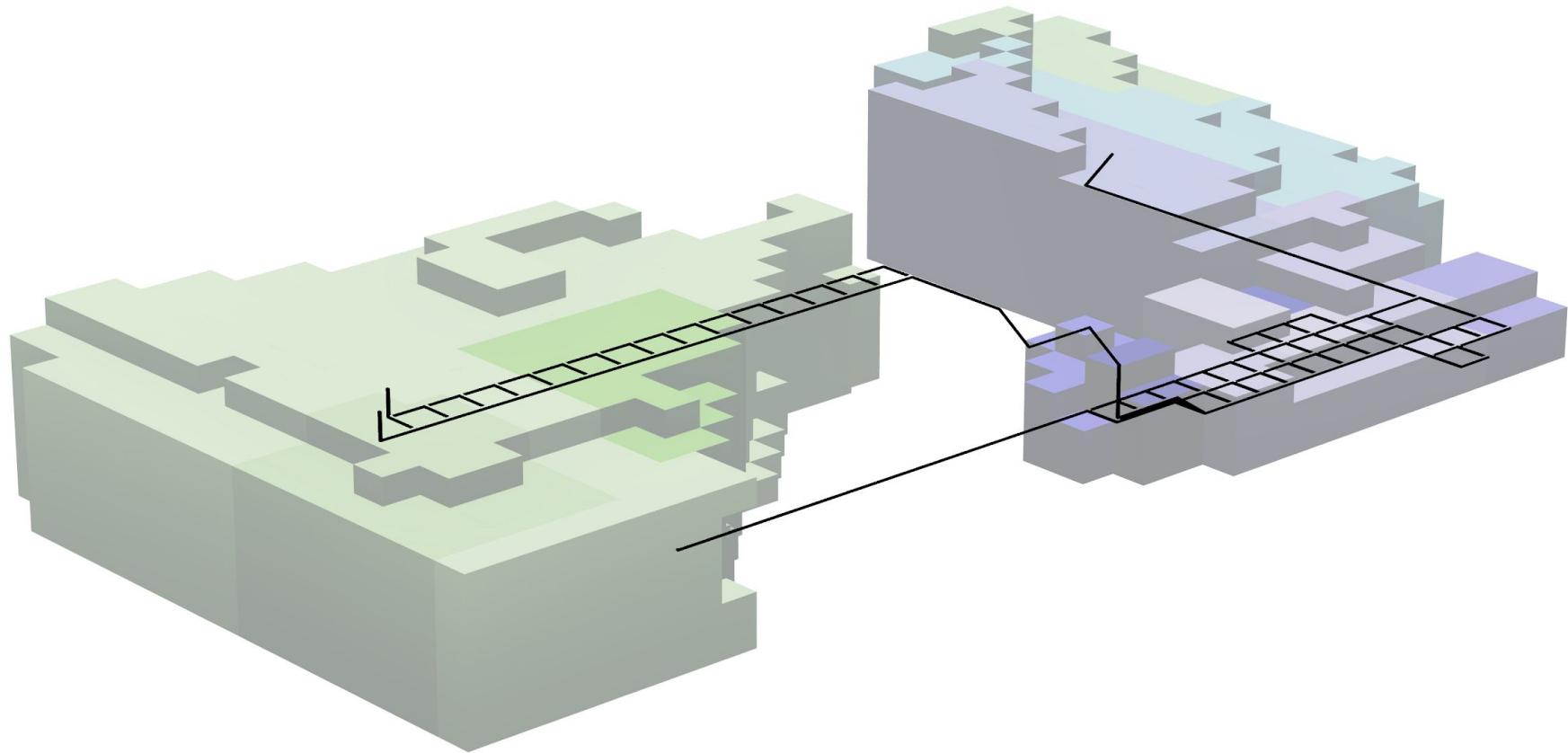
If you are okay with (randomized) prioritizing, don't spend time on a fully-dynamic model;

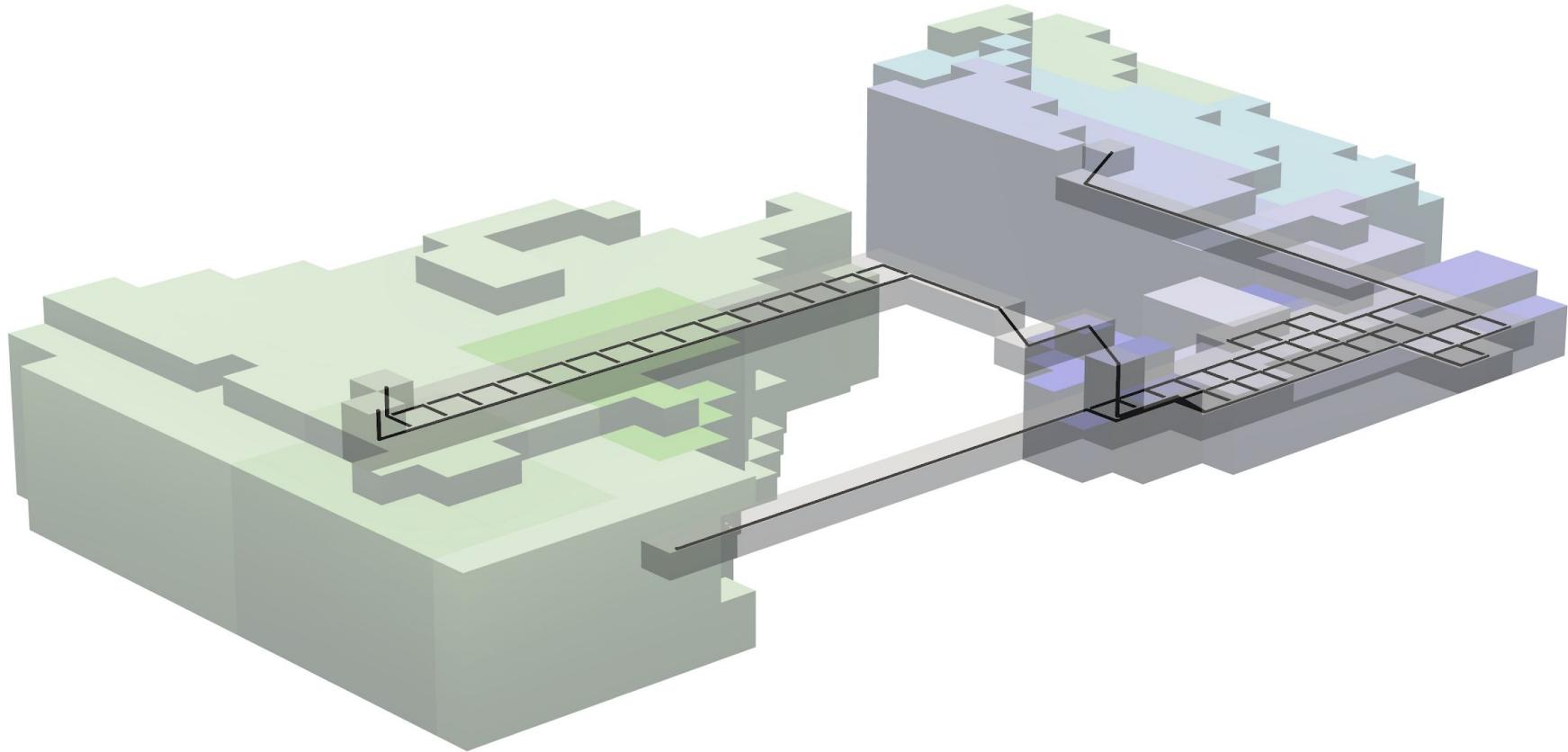
Be aware of a long calculation time.

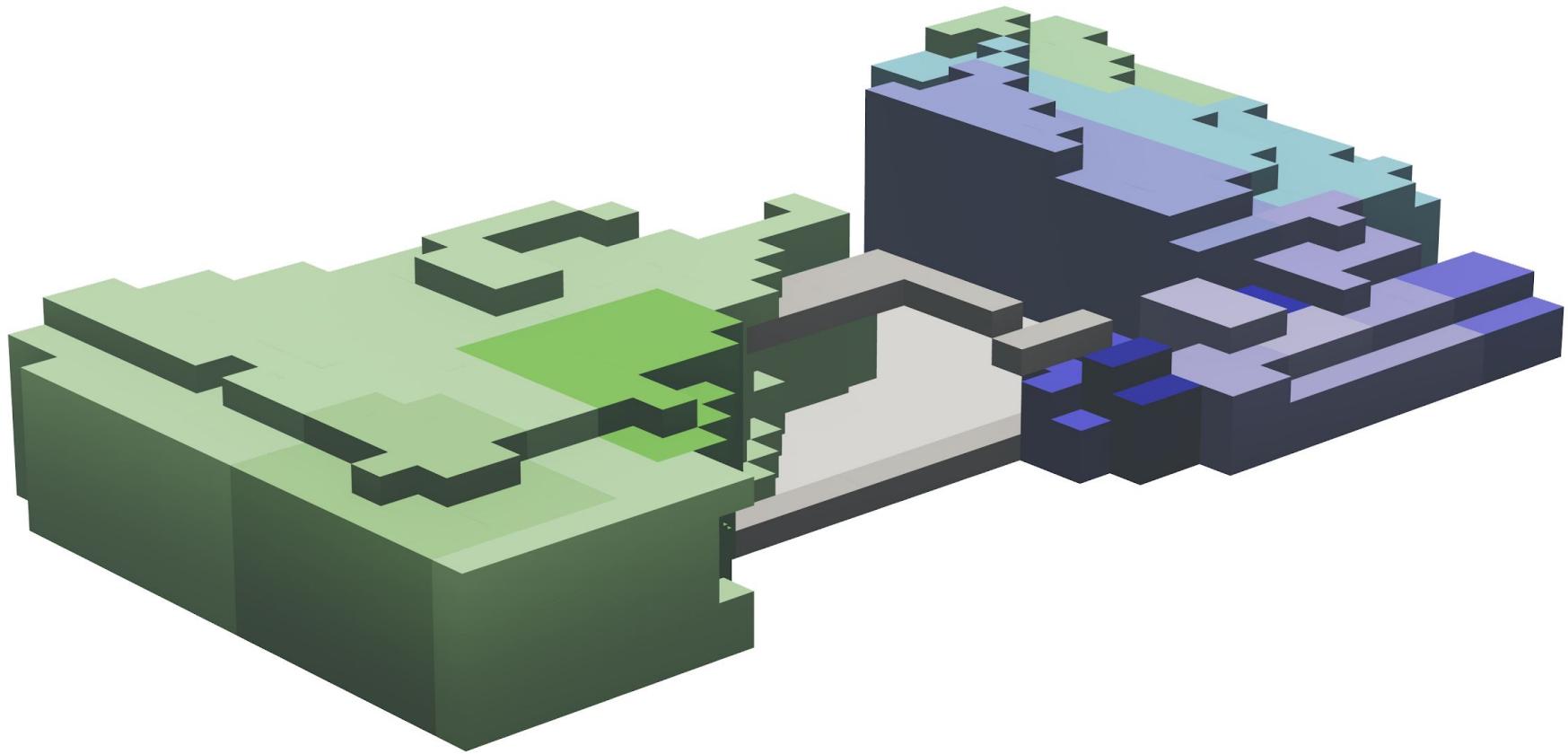
FLOWCHART: CONFIGURING



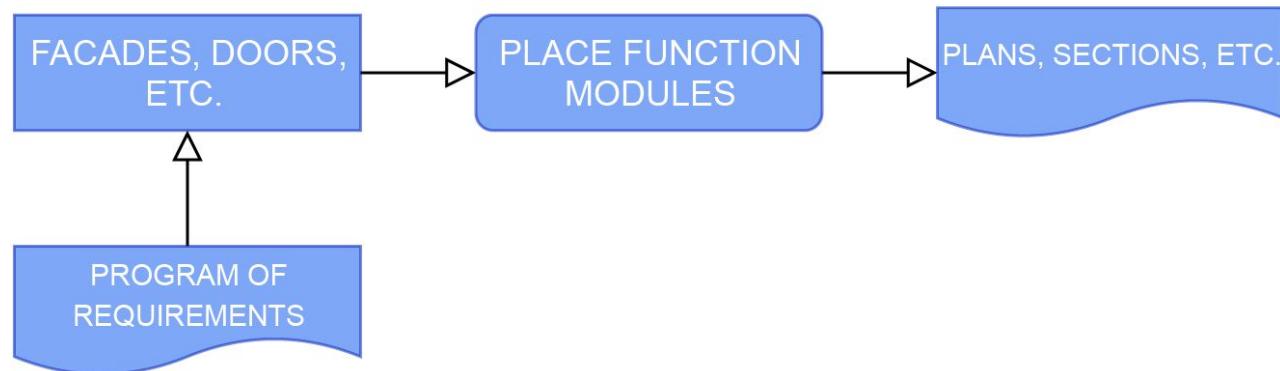




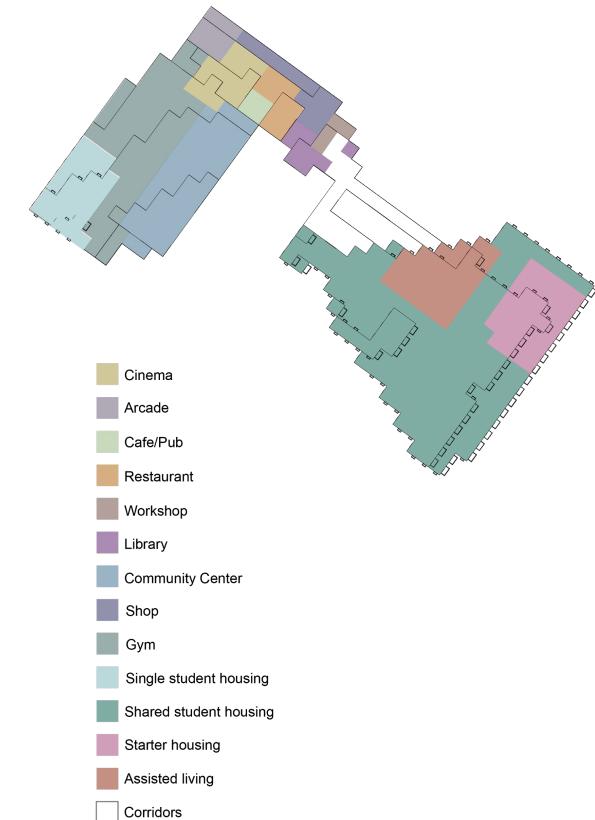
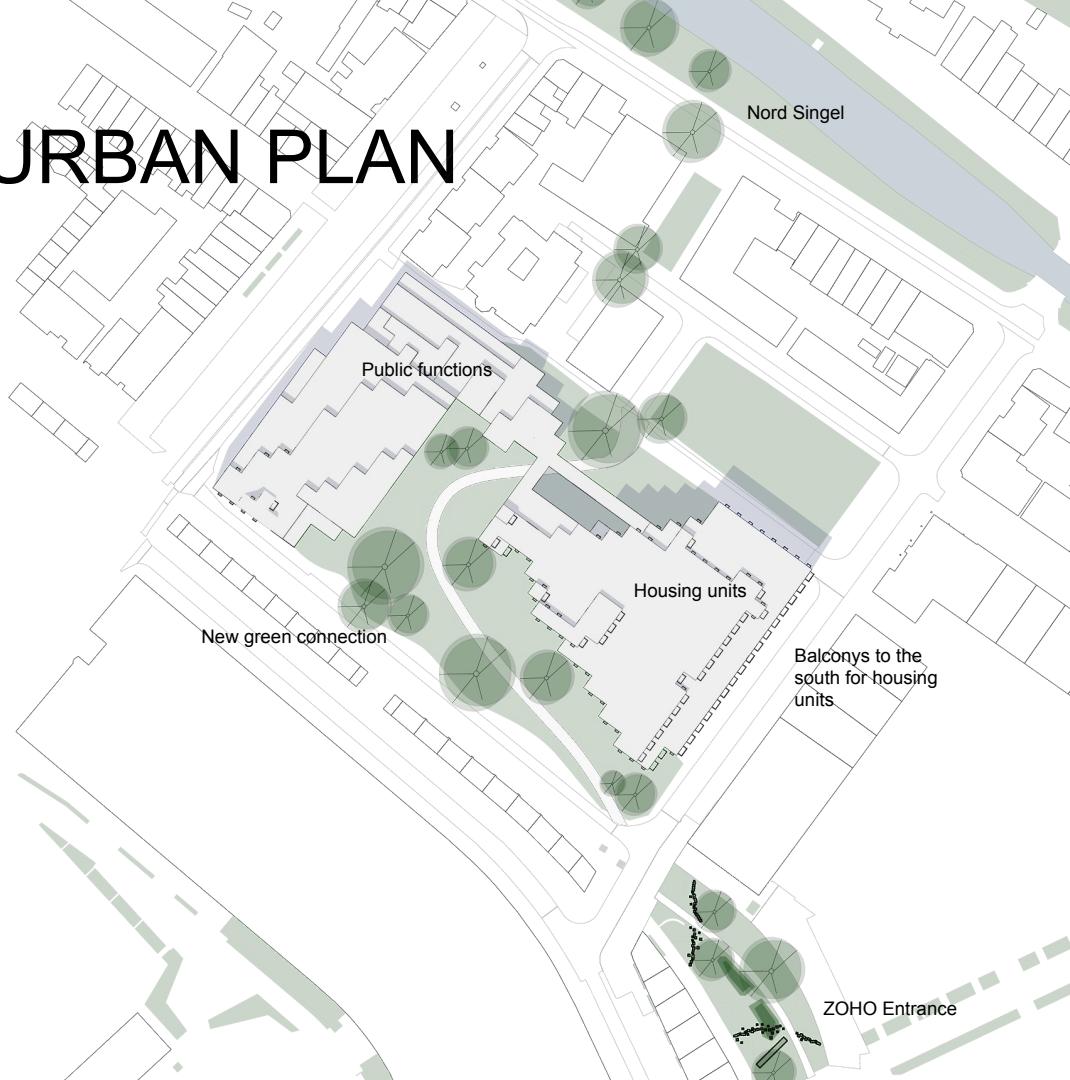




FLOWCHART: FORMING

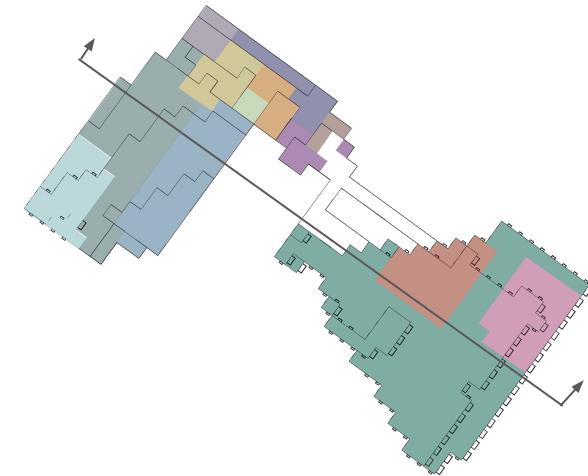


URBAN PLAN

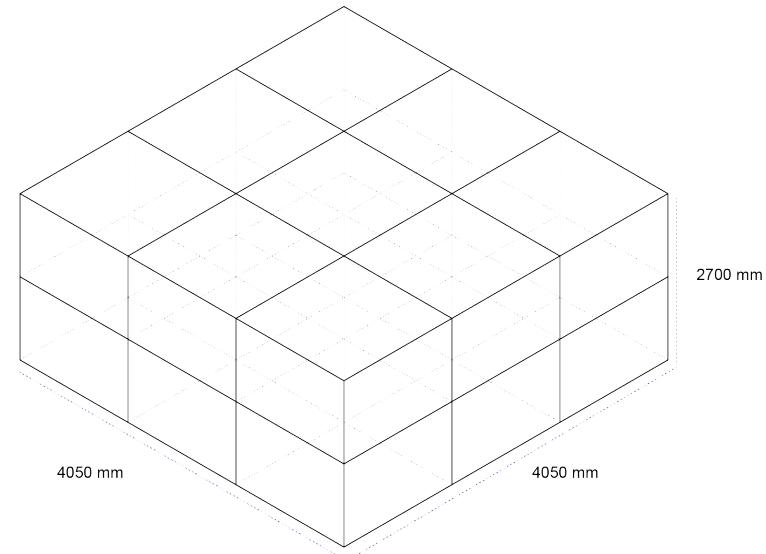
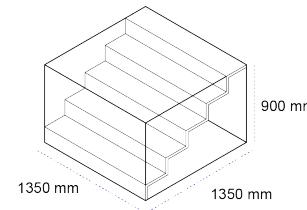
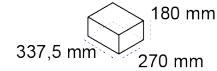


DIAGRAMMATIC SECTION

- [Yellow square] Cinema
- [Purple square] Arcade
- [Light green square] Cafe/Pub
- [Orange square] Restaurant
- [Brown square] Workshop
- [Dark purple square] Library
- [Blue square] Community Center
- [Dark blue square] Shop
- [Grey-green square] Gym
- [Light blue square] Single student housing
- [Teal square] Shared student housing
- [Pink square] Starter housing
- [Red-orange square] Assisted living
- [White square with black border] Corridors

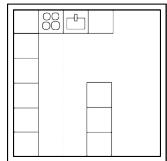


VOXEL DIMENSIONS

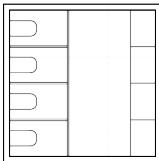


STEPRISE 180 MM
STEP THRESHOLD 270 MM

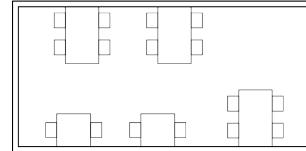
PLANS 1:200



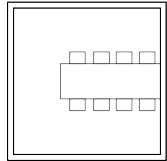
Kitchen



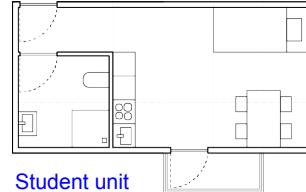
Toilets



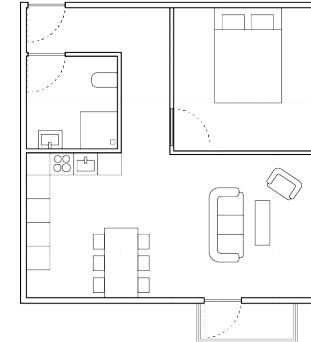
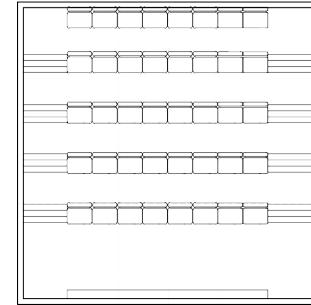
Cafe/Restaurant



Workshop



Student unit

Assisted living unit
Starter unit

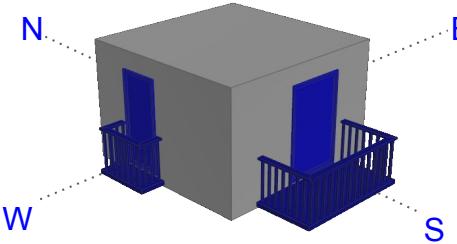
Small cinema

UNIT 16.4 m²

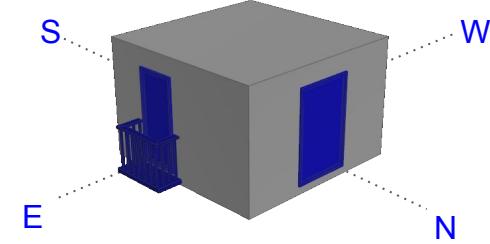
UNIT 32,8 m²

UNIT 65,6 m²

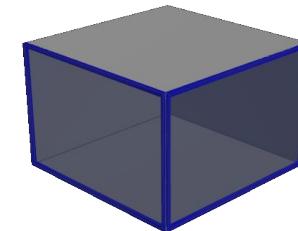
FACADE PRINCIPLES



Big balconies to the south for housing.
Randomly placed balcony and window to the west.



Randomly placed balconies to the east.
Window to the north.



Big windows on S, W, E facade for public functions.

RENDER IMPRESSIONS



Picture made with
Lumion Pro Students



Picture made with
Lumion Pro Students



Picture made with
Lumion Pro Students



A architectural rendering of a modern residential complex. The buildings feature a warm-toned wood cladding with horizontal siding. Large, rectangular windows are distributed across the facades. One building has a prominent cantilevered section. The complex is surrounded by lush green trees and includes a paved walkway with streetlights. In the foreground, a woman walks away from the camera, and a person on a bicycle rides towards it. The sky is blue with scattered white clouds.

Thank you for listening