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Lecture 12

A. Implementation of generative codes in design.
B. Urban plazas.
C. Designing for children.
D. Favelas and social housing.
A. Implementation of generative codes in design.

• Generative codes depend at each stage upon the entire configuration
• Generative codes are dynamic and recursive — the result of each step feeds into the next step
• … unlike iterative static codes (where the same step is repeated)
Design as computation

- Coherent and sophisticated structure grows, like computing a result
- Follows from many simple steps
- Each step is a computation
- Altogether, we develop a recursive sequence of transformations
Architectural algorithms

- Generative codes evolve structure to satisfy human needs
- Algorithms generate complex structures on the large scale
- Final design can appear “unexpected”
- If the process is adaptive, then the large scale is relevant and correct
B. Urban plazas.

• Project for Querétaro, Mexico
• Generative pattern for designing successful urban plazas
• INTENDED FOR THE NEW PARTS OF THE CITY
• City already has a sprawling 3-storey mixed-use urban fabric, but no community — it is fragmented
Social capital

• Urban space is not merely the CONTAINER of social capital
• Urban space is ITSELF social capital
• Social discourse occurs by connecting directly to other people
• — and indirectly by connecting to places, to nature, and thus to people
Urban space

• Patterns of human activity nearly always tie into urban space
• 20th-Century urbanism tried to internalize all urban space into the individual house and garden
• Frustrating quest for urban space that one individual or family controls
Urban space (cont.)

• As a result, houses and lots have grown ever larger and larger
• Take over city for private living space
• Unsustainable, but is encouraged by developers and land speculators
• End of social capital in our society!
Strong conjecture

- N.S. and Alexis Hugh Ramírez
- “Can we reconnect fragmented urban fabric by inserting urban plazas?”
- Will new plazas act as catalysts to reconnect the rest of the city?
- Modernist urban plazas disconnect urban fabric — an observed fact
Generative code: plazas-1

• Locate new square at intersection of intermediate-density roads
• Size of square follows historical type
• At least one edge touches on street
• At least one edge is pedestrian
• Build south edge of square with porticoes, if appropriate to culture
Generative code: plazas-2

- Surrounded all around by buildings no more than 3 storeys high
- No parking on or around plaza
- Available parking behind, or under
- Guarantee pedestrian feeding from at least 3 blocks all around plaza
Generative code: plazas-3

- Surrounding façades permeable to pedestrian — windows, doors, etc.
- Very narrow street frontages only
- Minimize use of modernist materials
- No glass façades allowed
- No sheer brick or concrete walls
Generative code: plazas-4

• All wall openings (doors, windows) must have a surround of width > 30cm
• Use historical form language only
• Ornamented façades and plaza itself
• Use colors and natural materials
• Signage in traditional lettering only
Generative code: plazas-5

• Walk the ground to set footpaths
• Save existing trees and landmarks
• Design to include plants in the left-over spaces; abandon formal symmetry
• Use traditional street furniture, highly ornamented down to < 5mm
• No abstract sculptures or forms!
Importance of detail

• Success of urban plaza is highly dependent on detail of structures
• Necessary but not sufficient condition is the presence of organized, coherent detail on the 3mm scale
• Can only be achieved by ornament
• ORNAMENT RULES PLAZA
Proposal

• Project developed for the city government of Querétaro, Mexico

• Our generative code creates a new successful plaza every time

• Applied on the Federal level, we can create 5,000 urban plazas, all distinct
Children’s playgrounds

- A plaza built according to our generative code is a playground
- Pedestrian access from surroundings
- Hopefully, the plaza will catalyze pedestrian urban life where none exists
- ACCESSIBLE green for children; opposite of today’s “see but not touch”
C. Designing for children.

• Our children are negatively affected by today’s built environment
• The geometry of urban landscape is hostile to children’s sensibilities
• Most adults do not realize this — they are fooled by visual symbols
The children’s world

- Experienced totally with senses
- Emotionally-based experiences
- Extremely sensitive to environment
- Child is not numbed like adults
- Is not yet conditioned to override emotions with abstract ideas
Unasked questions

• Can a child go out of a door and play safely in the environment?
• Can he/she explore without the parent fearing for its safety?
• How far can a child go anywhere on their own?
Downtowns

• Most downtowns in the US have been gutted of human scale
• Hostile glass or concrete fronts of skyscrapers are everywhere
• No permeability of street façades
• Hostile to both children and adults
Suburbs — commercial

- Effects are more subtle here
- Strip malls are pedestrian unfriendly
- The only pedestrian space is a short piece of sidewalk along stores
- No child can ever reach a store on foot from home, because those are designed for car access only
Suburbs — residential

- House surrounded by a yard is an impractical utopian image
- *Front yard* is too exposed for children to feel protected enough to play
- *Back yard* is a totally enclosed prison, and children feel this isolation
Suburbs — residential (cont.)

• Suburban streets are built to the width and smoothness of a highway

• *Danger grows exponentially with the street width!* (documented accidents)

• Too dangerous for children to play on wide street in front of their house

• US cities do not allow rough paving that slows down cars in European cities
Residential suburbs become unintended parking lots

- After a while, house garages are used as storage, filled with consumer junk
- Multiple family cars start taking over the street and driveways
- Suburb becomes a giant parking lot
- Goodbye to the promised “green garden” image of suburbia!
Intentional parking lots

• Giant open parking lots are terrifying and dangerous for children

• Feel threatened every second you are a pedestrian in the parking lot

• Most parking garages are not better — hostile prison-like environments
Complicity of planners

• Too dangerous for children to ride bicycles through neighborhood
• Planners refuse to change the codes to allow a genuinely child-friendly built environment
• Shockingly, adults have absolutely no idea of how to achieve this goal
Skyscrapers as prisons

• The most inhuman environment for children is the skyscraper
• Children lose all contact with nature and human reality
• This building typology isolates and diminishes the children’s world to within one apartment or one room
Four-storey limit

- Christopher Alexander already gave the criterion of a four-storey limit for apartment houses
- Based upon the distance children can successfully interact with their friends and parents on the ground
- Putting children into high-rises is a crime against humanity!
A new urban realm

- Get rid of dangerous intersections, crossings, giant urban visual objects
- Get rid of prison-yard concrete playgrounds — a sadistic experiment
- Make entire urban space a playground
- Surround useless expanses of lawn by protecting structures to encourage play
Why did we do this?

- Why are Western cities so totally, obsessively, child-unfriendly?
- Because modernist design is based on an inhuman vision of people who did not care for children
- Ideology overrides human life, even ignores the future of the human race!
Christopher Day

- Already already wrote a book on design with children in mind
“Environment and Children”
Favelas as examples

• We are too arrogant, too caught up with ridiculous and destructive ideas of modernity, too dependent upon mechanization, too proud to admit we have destroyed our cities

• We are too proud to learn from poor people who have a better urban sense that we do!
D. Favelas and social housing.

- 1 billion people live in favelas
- The majority of those regions have unhealthy living conditions
- The physical structures are made from unhealthy or unstable materials
- **BUT THE FORM IS ORGANIC, AND GENERATES URBAN LIFE!**
The presumed solution

• Every government wants to replace favelas with industrial housing
• The intention is to visually clean up their urban structure
• The government incorrectly assumes that the people want an ordered environment above all else
No solution to drastic problem

• The system responsible for erecting industrial social housing can never solve the problem
• There are too many people
• There is not enough money
• Inhabitants of industrial housing hate their houses — they find them alien
A new proposal

• “Favelas and Social Housing: An Urbanism of Self-Organization”
• Paper by N.S., David Brain, Andrés Duany, Michael Mehaffy, & Ernesto Philibert-Petit
• Based in large part on the earlier work of Christopher Alexander
Our criteria for success

• We consider a housing project successful if it is LOVED by its residents
• … unsuccessful if it is despised by its residents
• EMOTIONS ARE CONSEQUENCES OF THE CONNECTIVE GEOMETRY!
The key to success

• Utilize and harness the processes of self-organization
• Cultivate the connection between physical and social complexity
• Reverse machine typologies for social housing practiced during past century
• Abandon the ideology of modernism
Ecosystem competition

- *Favelas* are self-built, and lie outside government control
- Social housing *blocks* are built by government to impose its control
- Conflict between the two models wastes useful resources and does not solve the housing problem
Artificial versus organic

- Housing blocks
  - Usually artificial
  - Planned housing
  - Imposition of human will
  - Typical top-down process

- Favelas
  - An organic growth
  - Extensions of human biology
  - Typical bottom-up processes
Generative code for owner-built social housing

• 10 steps to build a new community
• Government provides materials
• We (NGO advisors) provide advice
• Future residents provide the labor
• Government provides the minimal infrastructure
1. Walk the ground to define paths
2. *Cardo* and *decumanus* define main streets
3. Urban spaces chosen by emotion, become bubbles in street structure.
*Note on urban spaces*

- Save existing pieces of nature: trees, rocks within urban space
- Save any features that can establish common interest
- In older societies, urban space contained sacred elements
- Urban space defined “sacred space”
4. Urban square defined by surrounding buildings — no setbacks
5. Space between lots defines the streets, not the other way around
6. Patios surrounding house are oriented to catch the sun
*Note on the buildings*

- We don’t offer a standardized plan
- Future residents work with a flexible, *recommended* plan that is adjusted, and only then is the lot measured
- There is a margin for change to adapt to each family’s individual needs
7. Residents design a pattern on their sidewalk, while the concrete is still fresh.
*Note on the sidewalks*

- First part of entire project to be built
- Each family will truly own their portion of sidewalk, because they ornament it with tiles, pebbles, etc.
- “*We made it, therefore it’s ours*”
- Establishes the deepest sense of belonging to the residents
8. Façades, sidewalks, and benches reinforce urban space
9. Wide, thick boundary defines entry as process of transition
10. Provide materials so that each owner ornaments their own dwelling
The key to constructing living urban fabric

- Combines the bottom-up favela with top-down social housing
- The cheapest solution!
- Only slightly more expensive than building favelas (which are free)
- It is also the best for the long-term
Obstacles to our solution!

• The myth of large numbers is antiquated thinking

• Control of design and manufacture assumes standardized templates

• Standard social housing model conforms to industrial image of mass-production of the 1920s
False paradigm

• The ONLY reason for standard production of housing is administrative control, NOT quality of product
• Identical, mass-produced units are easier for accounting purposes
• Government bureaucrats care more to maintain their bureaucratic system
Threat to government?

• A government feels threatened by the ORGANIC GEOMETRY of the favela, more than by anything else
• So... government prefers to subsidize the large construction companies
• Desire to impose control prevents a viable solution to housing crisis
Wise government decision

• We must build mixed-use CITY, not cheap dormitories
• We build for living beings, not to cram the maximum number of people into the largest boxes
• Have to get industrial contractors out of controlling social housing
Obstacle from builders

• Industry prefers to build modernist block housing, and not bother with people’s wishes — it’s simpler
• Lucrative sales of blocks, and government pays for modules
• But builders can still make a profit from our individualized method!
Architects have it wrong

- Architects’ idea of “good” design has nothing to do with human feelings
- They rely on abstract concepts of design and form
- Architect-designed social housing is oppressive and inhuman
Political opposition

- *From the Left*: “everyone is equal, so they must have identical houses”
- *From the Right*: “poor people have no right to personalized dwellings”
- *From the Center*: bureaucracy takes care of social housing, which must impose industrial uniformity
Obstacle from residents

- Poor people have seen images on TV
- … of unsustainable American houses
- They want the same thing!
- Don’t know that their own tradition provides more sustainable patterns
- Don’t know that they will probably be forced into concrete prison boxes
The geometry of control

• Not only social life becomes a victim of geometrical control
• Trees and natural features are all eliminated because they are “dirty”
• The industrial landscape is lifeless
• Life and living urban geometry are complex, not simplistic
New role for nature

- Nowadays, nature is a threat to modernist geometry, and is only partially re-introduced as a purely decorative element.
- Wholeness of site is destroyed.
- We must retain, protect, and privilege nature to create a living environment.
Places of significance

- Sacred spaces — places we love
- Places of community
- They exist in traditional urban fabric, but not in any of today’s developments
- We have lost the sense of the sacred
- We have lost the public places we can attach to emotionally
Conclusion

• Favelas and social housing can be amalgamated into a single hybrid housing process
• Self-construction, with government support and expert advice (from us)
• We see this as the ONLY solution to a major problem facing humanity