

Modeling Architectural Qualities

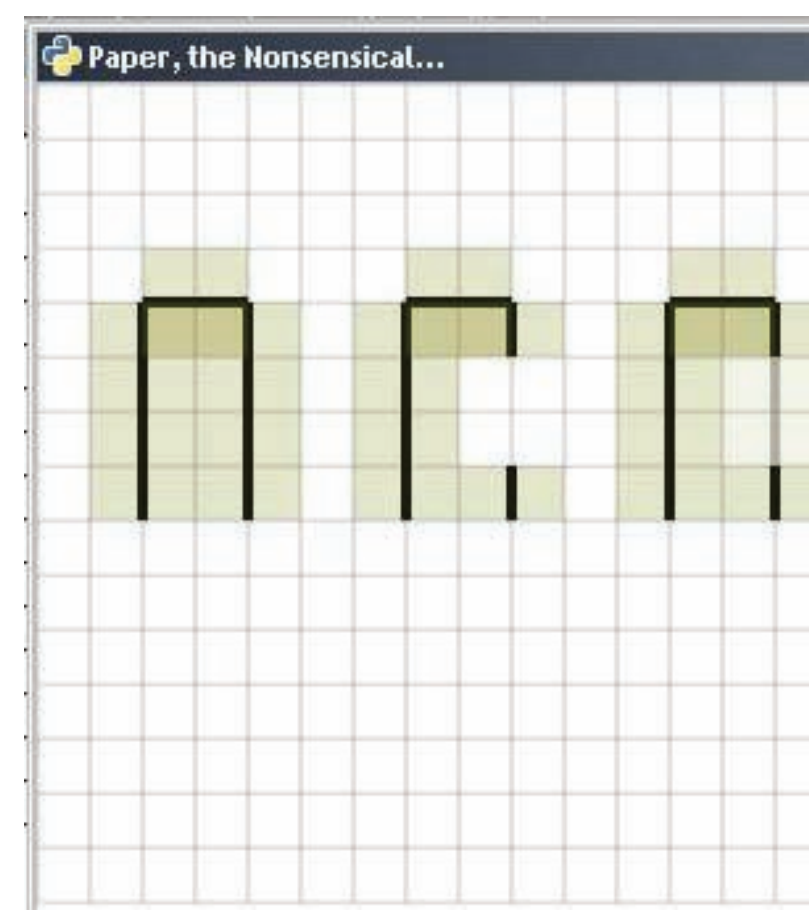
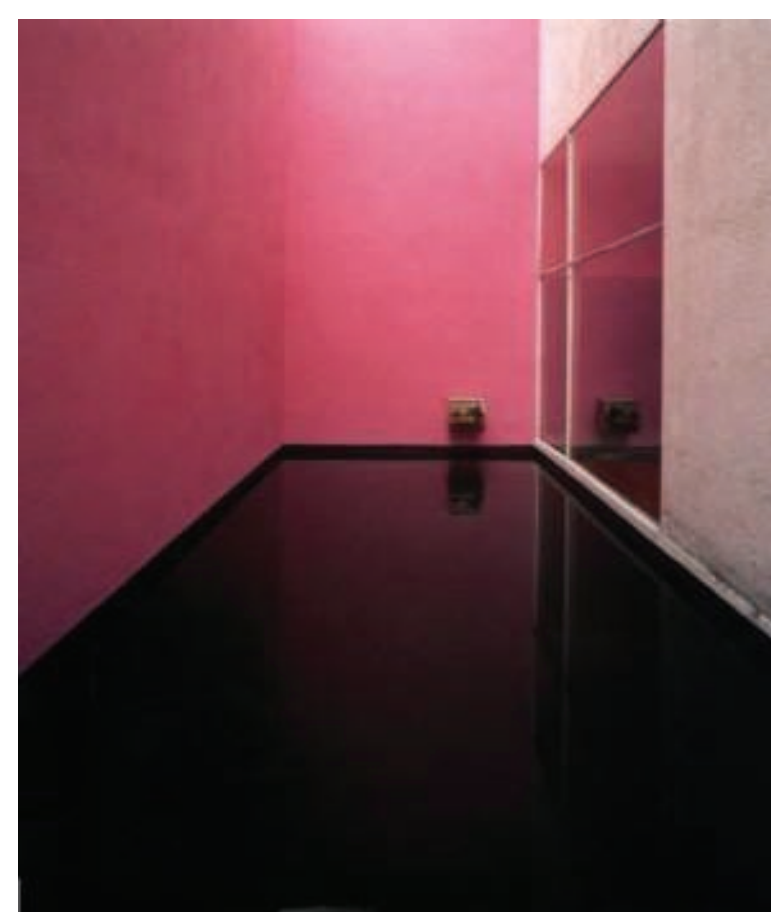
Sora Key, Computational Design Lab. Carnegie Mellon University
Mark D Gross, Computational Design Lab. Carnegie Mellon University
<http://code.arc.cmu.edu>

Our built environment has deeper complexity that is created by people and their use, over the physical configuration. To support early design, this project models experiential characteristics of architectural space such as enclosure, viewfield, directionality, continuity, and dynamicity. The program analyzes floor plan diagrams and shows architectural qualities of the building overlaid on the plan.

Description of the characteristics

ENCLOSURE

Enclosure is how open or closed the field of the given position is.



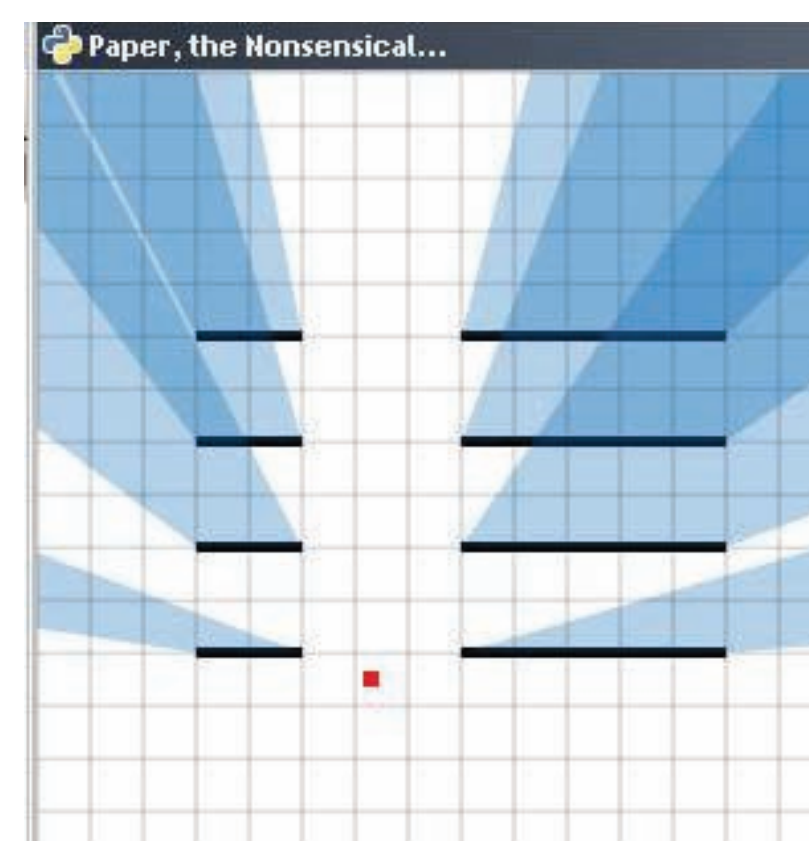
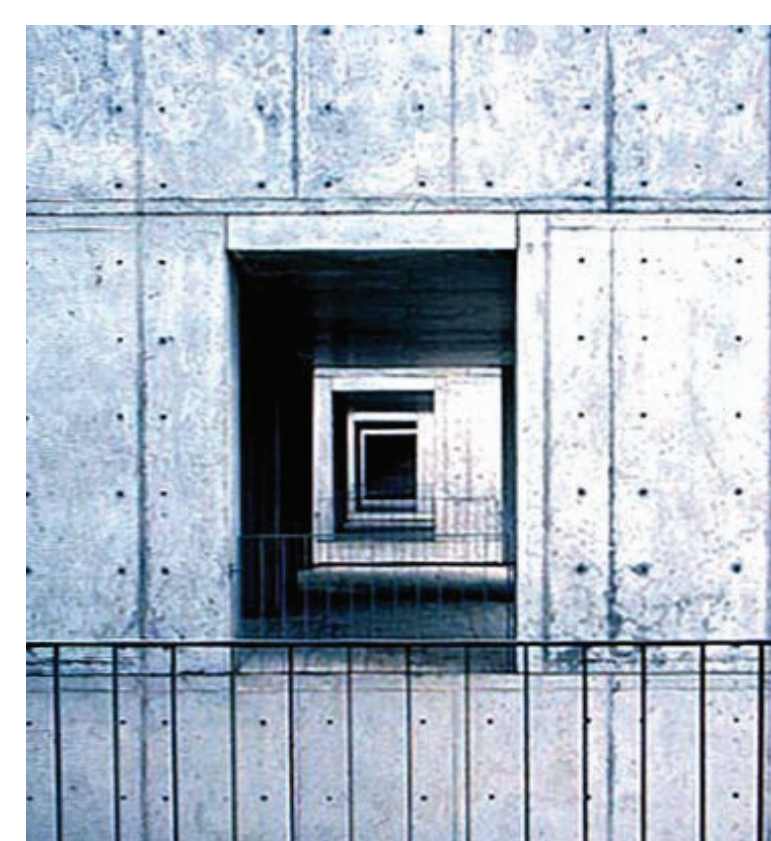
Treatment of opening

- 1) Solid wall on the right side
- 2) window sized opening on the wall
- 3) a glass window, from left to right.

Estanque Da Casa Gálvez, Luis Barragan

VIEWFIELD

Viewfield is a visible area from a viewer's position. Many inferences can be made by the visible and the invisible.



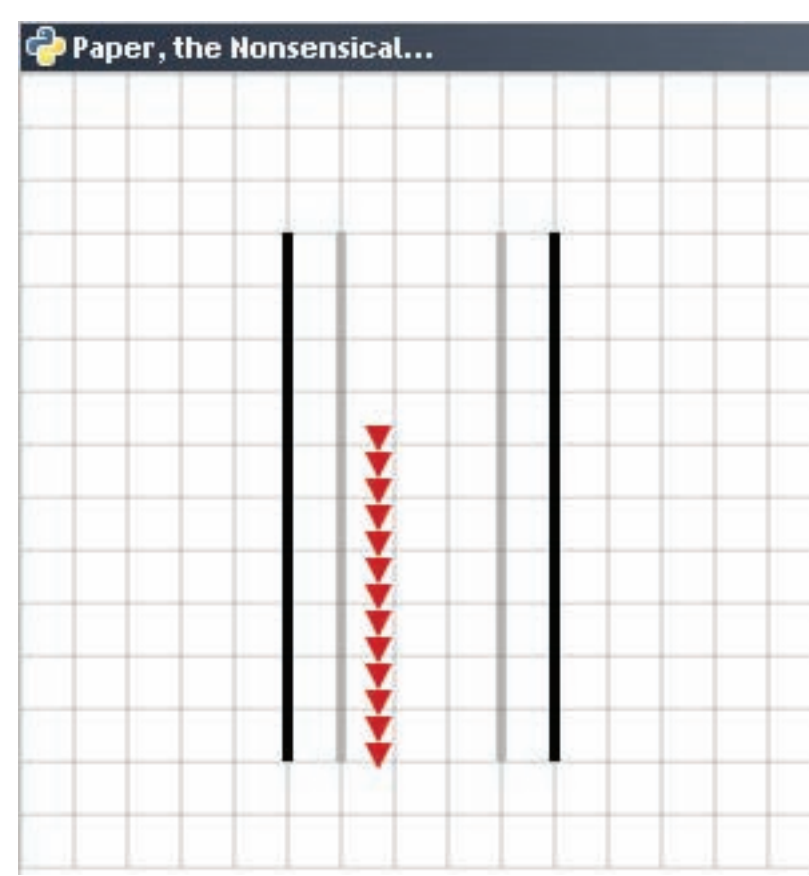
Possible view-field

White area is the visually accessible field.

Salk Institute for Biological Studies, Louis I Kahn

DIRECTIONALITY

Directionality indicates the expected direction of the viewer. The components act as the visual cue.



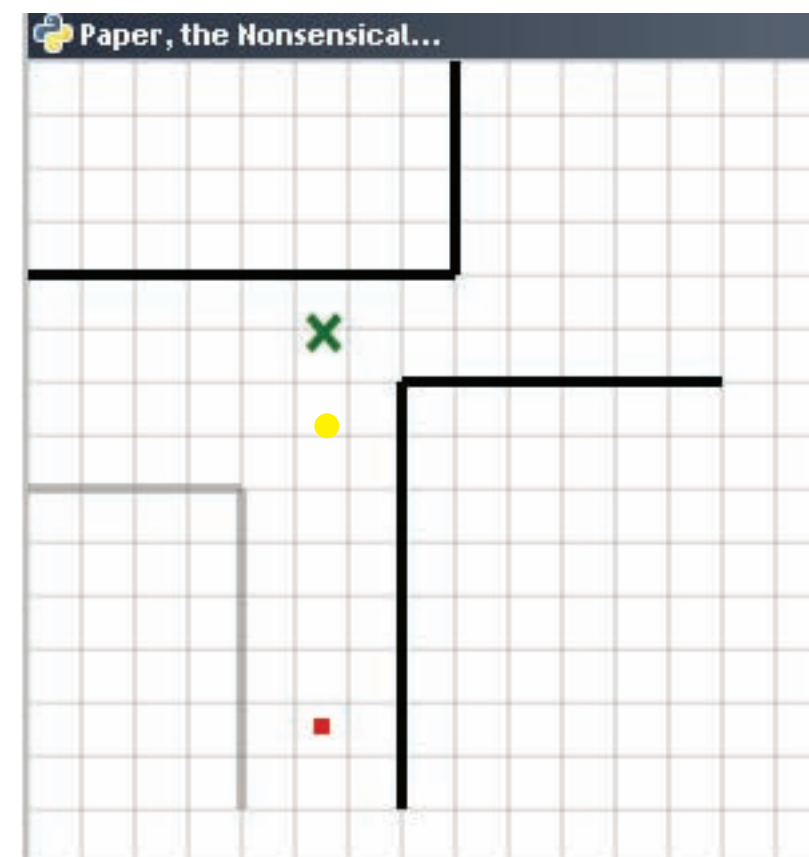
Suggested direction

The length of arrows shows the degree of directionality within the field.

Uffizi Gallery, Florence

CONTINUITY

Continuity is uninterrupted connection of a physical component that belongs to two rooms, as a physical cue of movement.



Boolean value of Continuity

Yellow point has continuity but green has not because the wall stops before it reaches to the point,

Therme Vals, Peter Zumthor

DYNAMICITY

Dynamicity is the overall configuration that shows changing patterns of characteristics with a certain level of regularity.



The spiral circulation path of Guggenheim Museum shows the following characteristics.

- 1) low enclosure level
- 2) strong directionality
- 3) strong continuity

The overall patterns indicate there is a strong regularity when experiences keep changing.

Guggenheim New York, Frank Lloyd Wright