Museum Gallery Morphology and Orientation in Gallery Spaces:
An Inquiry on the YCBA, the MoMA-New Extension and the HMA
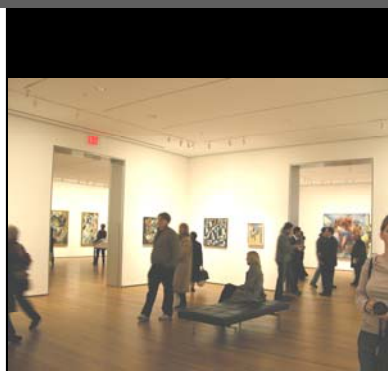
By Ipek Kaynar Rohloff

RESEARCH QUESTIONS

How do *morphological characteristics* contribute to providing good *orientation in* museum galleries?

(1)
To what extent **visibility relationships** predict visitors' **behavior of visually scanning** the layouts?

(2)
Which morphological characteristics do play a role in predicting behavior of scanning layout?

MoMA Gallery interior

In museum design providing good orientation levels is critical for shaping visitor experience. This study shows visual interconnectivity between central and peripheral locations may bring good orientation and easy way-finding.

METHODOLOGY: Case Study & Correlation Research

Museums selected for a case study

Yale Center for British (**YCBA**) Art, New Haven

Museum of Modern Art (**MoMA**), NY

High Museum of Art (**HMA**), Atlanta, GA

Behavioral Data
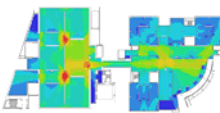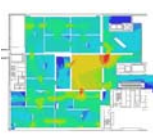
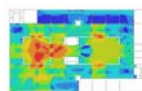Stops for visually scanning and looking at atria ("scanning stops")
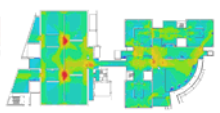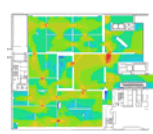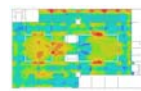
Rates of "scanning stops" within the general stopping behavior
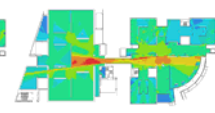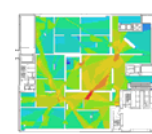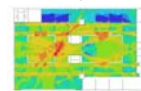
Visibility Structure Properties (Top-down characterization)

Connectivity: *How much space can be directly seen*
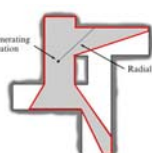
Control: *How much less interconnected space can be seen*

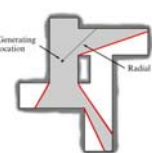Integration: *How much space one can see within fewest visual steps*
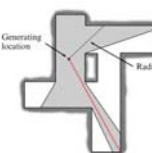

Visual Field Properties (Bottom-up characterization)

Isovist perimeter: *Exposed surfaces*

Isovist occlusivity: *Hidden regions*

Isovist max radial: *Longest lines of sight*

COMPARISON OF VISIBILITY LEVELS
Visual Intelligibility, Mean Connectivity and Mean Integration measures

	Visual Intelligibility (R^2 value)	Mean Connectivity	Mean Integration	Layout Size (n. of grid cells)
YCBA	0.67	782.58	8.24	6466.00
MoMA	0.56	916.46	6.08	11033.00
HMA	0.59	1018.46	7.07	11423.00

Visual intelligibility (Space Syntax Definition):
The degree to which its **global visibility** properties can be grasped by an observer through **local visibility** properties
= **correlation between connectivity & integration.**

ANALYSIS RESULTS

Links between scanning stops & top-down characteristics

Links between scanning stops and bottom-up characterization:

YCBA:
Visitors visually scan the galleries where atrium opens up the information of neighboring locations and bring visual proximity of other parts of the layout (R^2_{int}= 0.49, R^2_{conn}= 0.61, R^2_{cont}= 0.58; p<.05).

Exposed surfaces and hidden regions in visual fields motivate the behavior of visually scanning the layouts (R^2_{peri}= 0.47, R^2_{occl}= 0.45; p<.05).

MoMA:
Visitors tend to scan the layout or look at the atria rather than viewing displays when layout brings visual proximity to other parts of the layout (R^2_{int}= 0.49).

Longest lines of sight from gallery rooms reveal the information of the gallery space and motivate the behavior of visually scanning space rather than viewing displays ($R^2_{iso.max.rad}$= 0.44; p<.05).

HMA:
Seeing neighboring locations and having visual proximity to other parts of the layout are influential on behavior of visually scanning (R^2_{int}= 0.59; p<.05).

Effects of visibility on scanning behavior are not consistent in all spaces. Visitors visually scan the galleries mostly around the central axis and choice-points.

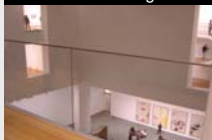## MORPHOLOGICAL CHARACTERISTICS AND THEIR EFFECTS ON ORIENTATION

YCBA: gallery interior

Easiest to navigate and understand:
Atria openings and partitions allowing continuous visibility towards periphery: visitor regain sense of orientation during navigation.

MoMA: view through atrium

Requires more effort to understand:
Few atrium openings and partitions allowing visibility only to few rooms away: longest lines of sight restore sense of orientation, not continuously during navigation.

HMA: central core area

Understood through central axis:
Behavior of visually scanning and movement is motivated along the central core, but this behavior appears in certain galleries, such as choice points