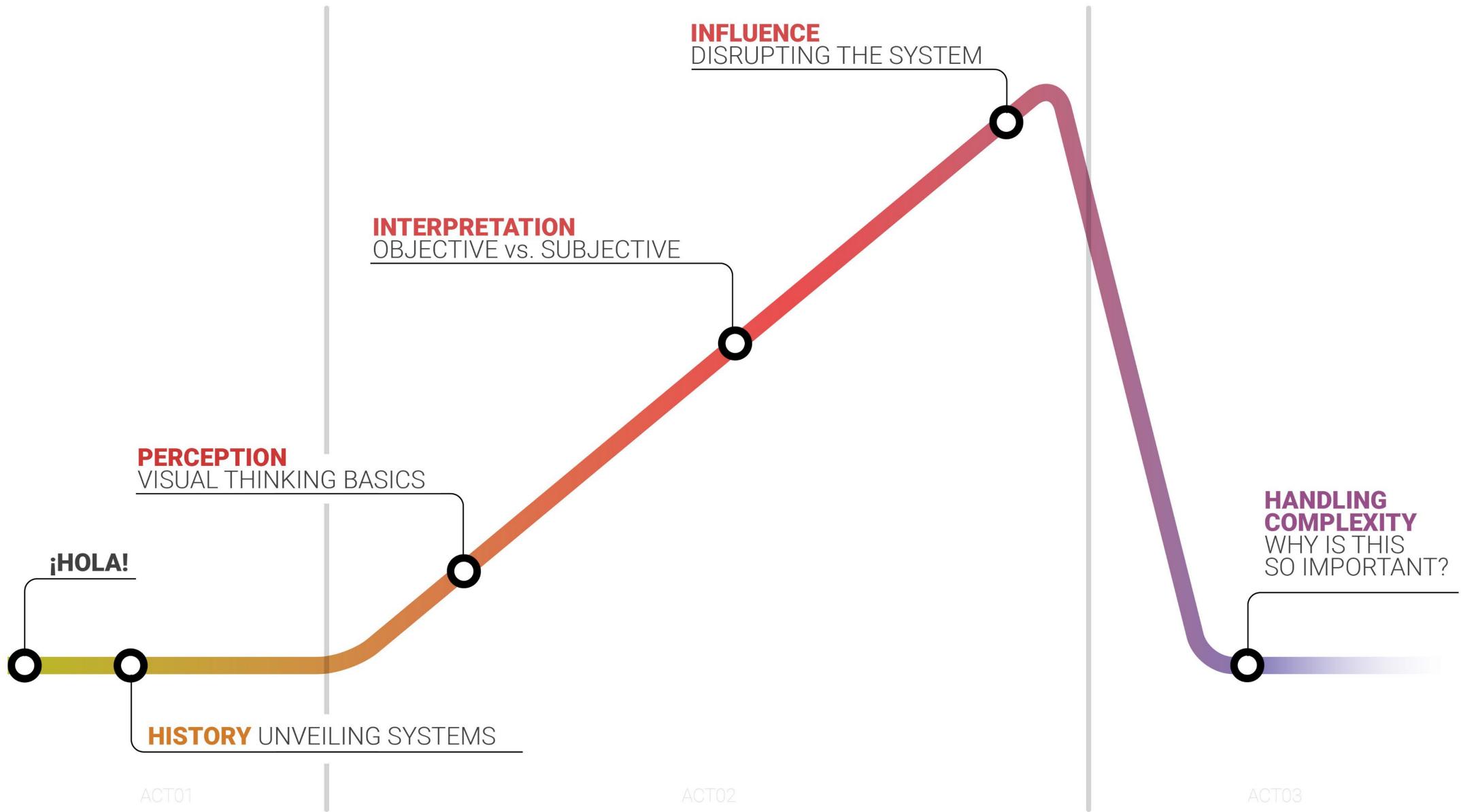


COMMUNICATING THE ORDER OF SYSTEMS

AEC SEATTLE | JUNE 2023

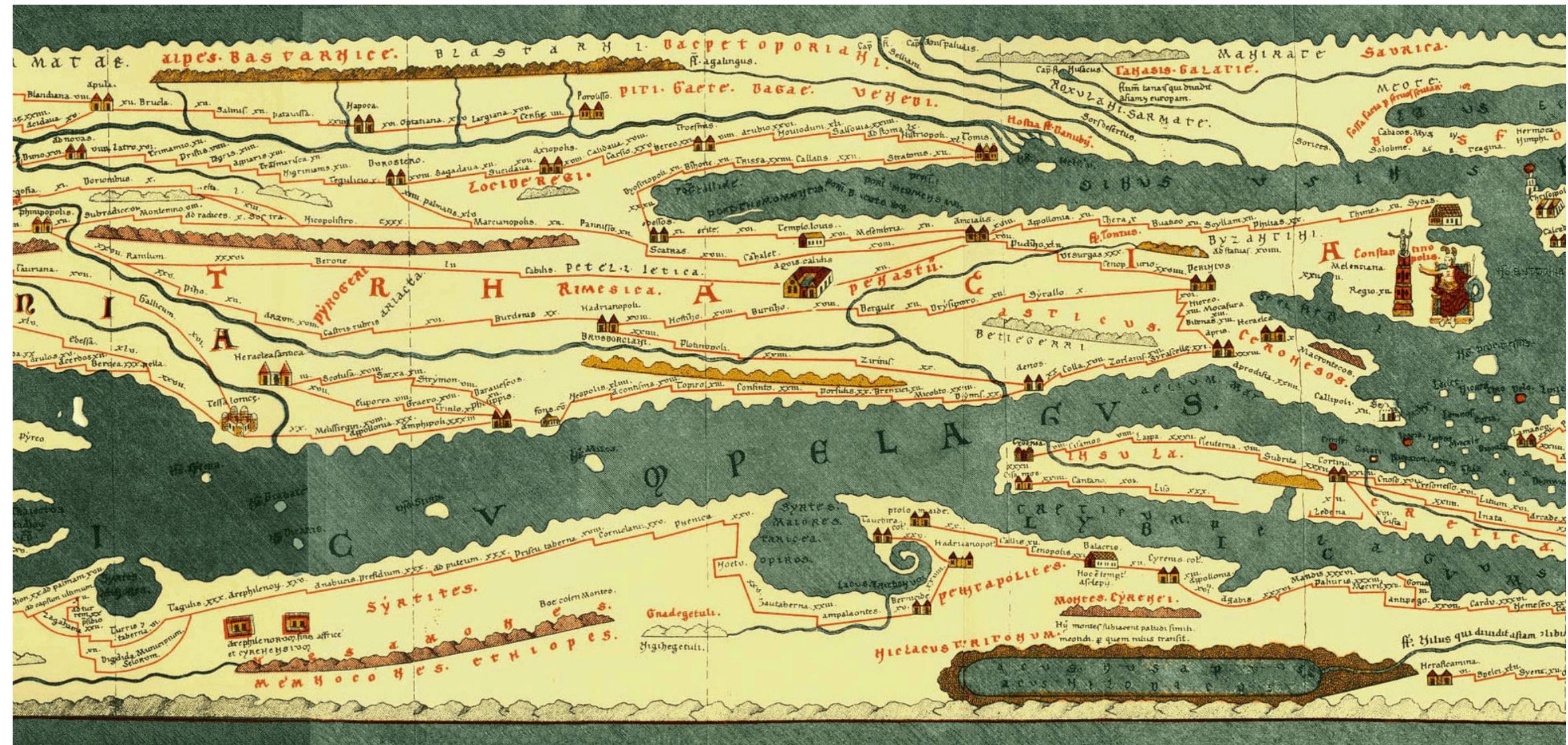


OUR PLOT



HISTORY: UNVEILING SYSTEMS

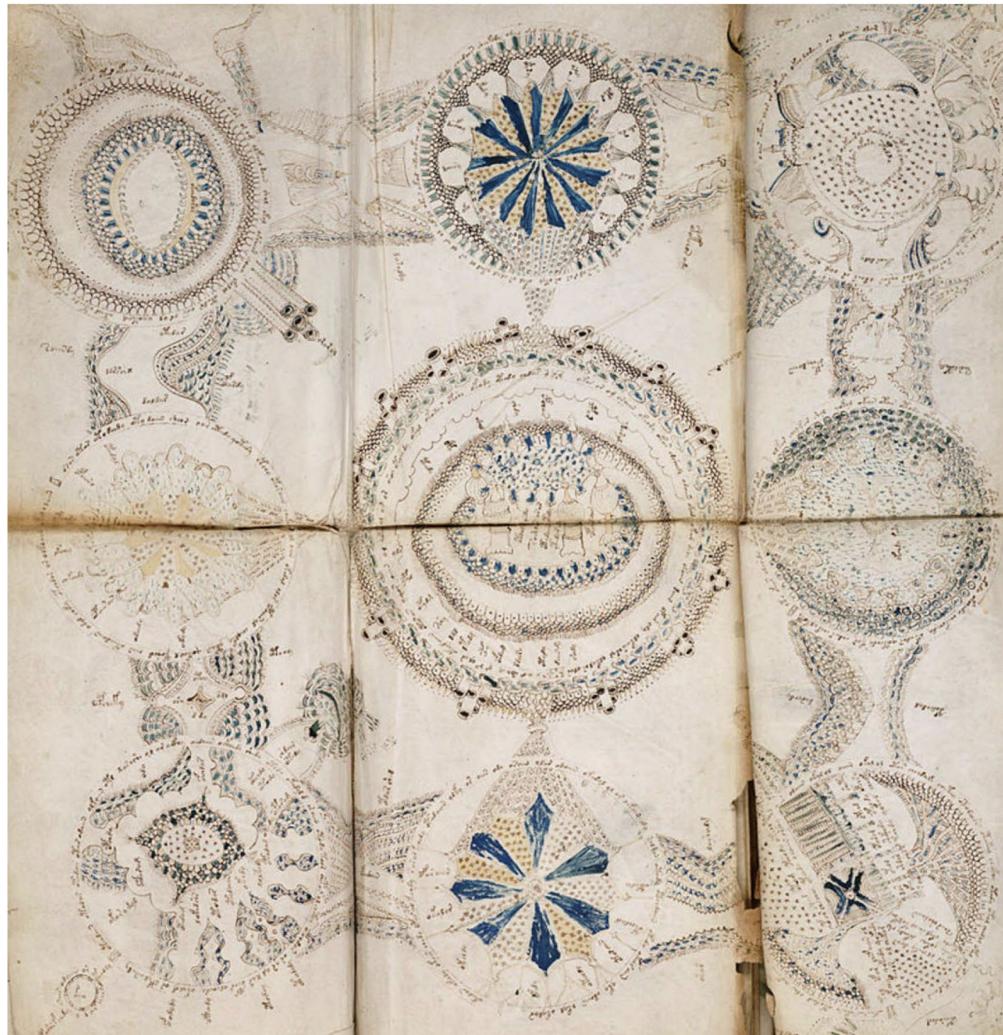
DISCOVERY OF THE PHYSICAL WORLD





HISTORY: UNVEILING SYSTEMS

REPRESENTATION OF THE WORLD AS WE IMAGINE IT



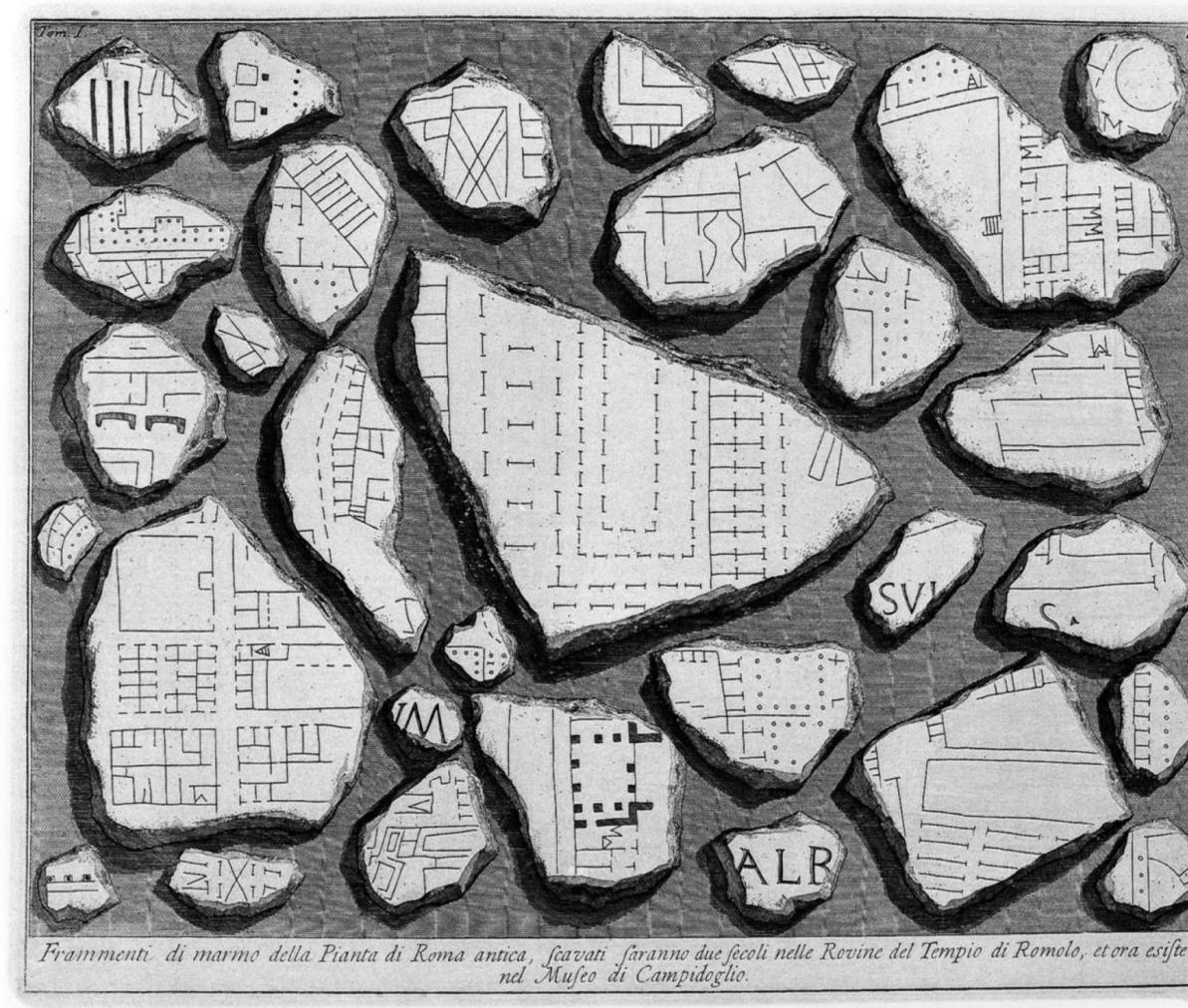
VOYNICH MANUSCRIPT

, 1500



HISTORY: UNVEILING SYSTEMS

REPRESENTATION OF THE WORLD AS IT IS



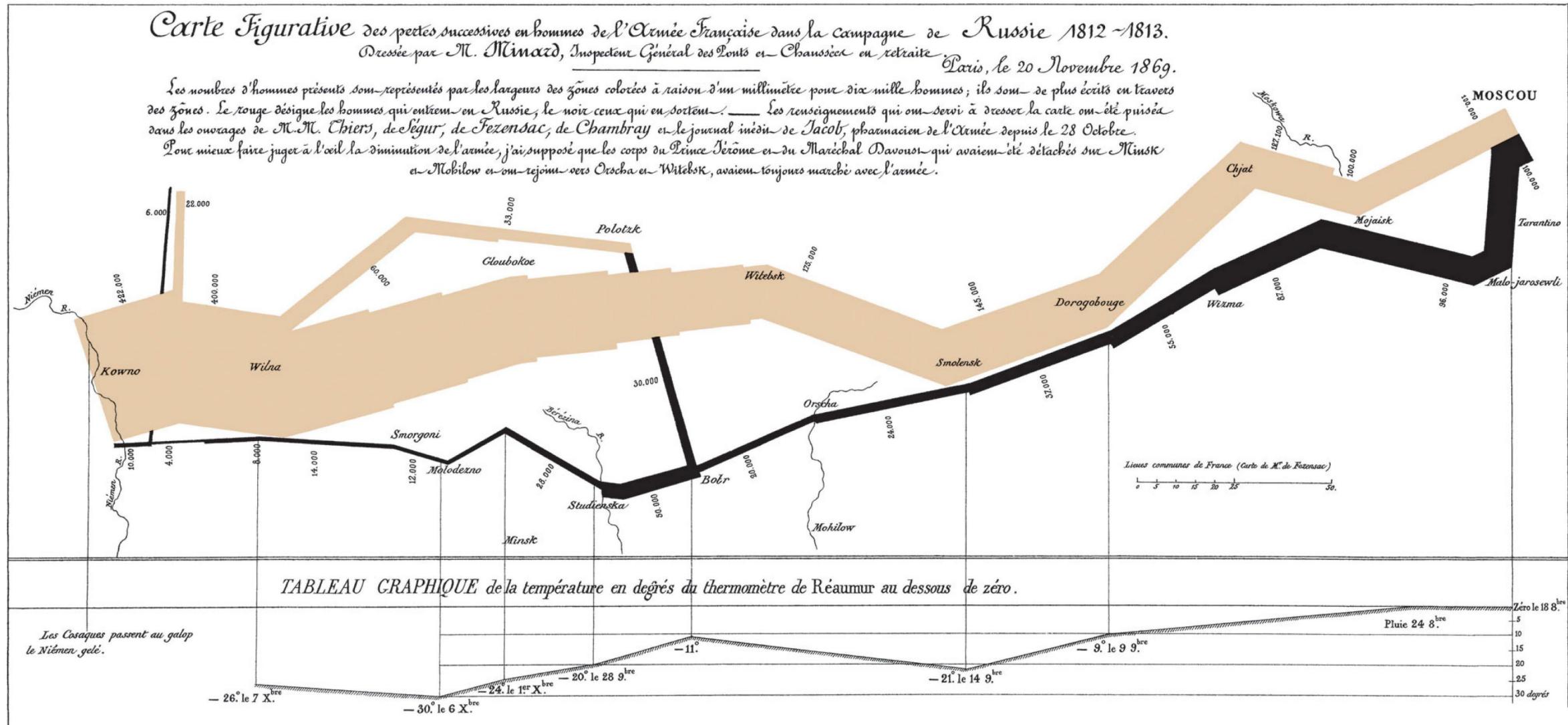
FORMA URBIS ROMAE

GIOVANNI BATTISTA PIRANESI, 1756



HISTORY: UNVEILING SYSTEMS

MULTIPLE DIMENSIONS OF NAPOLEON'S RUSSIAN CAMPAIGN



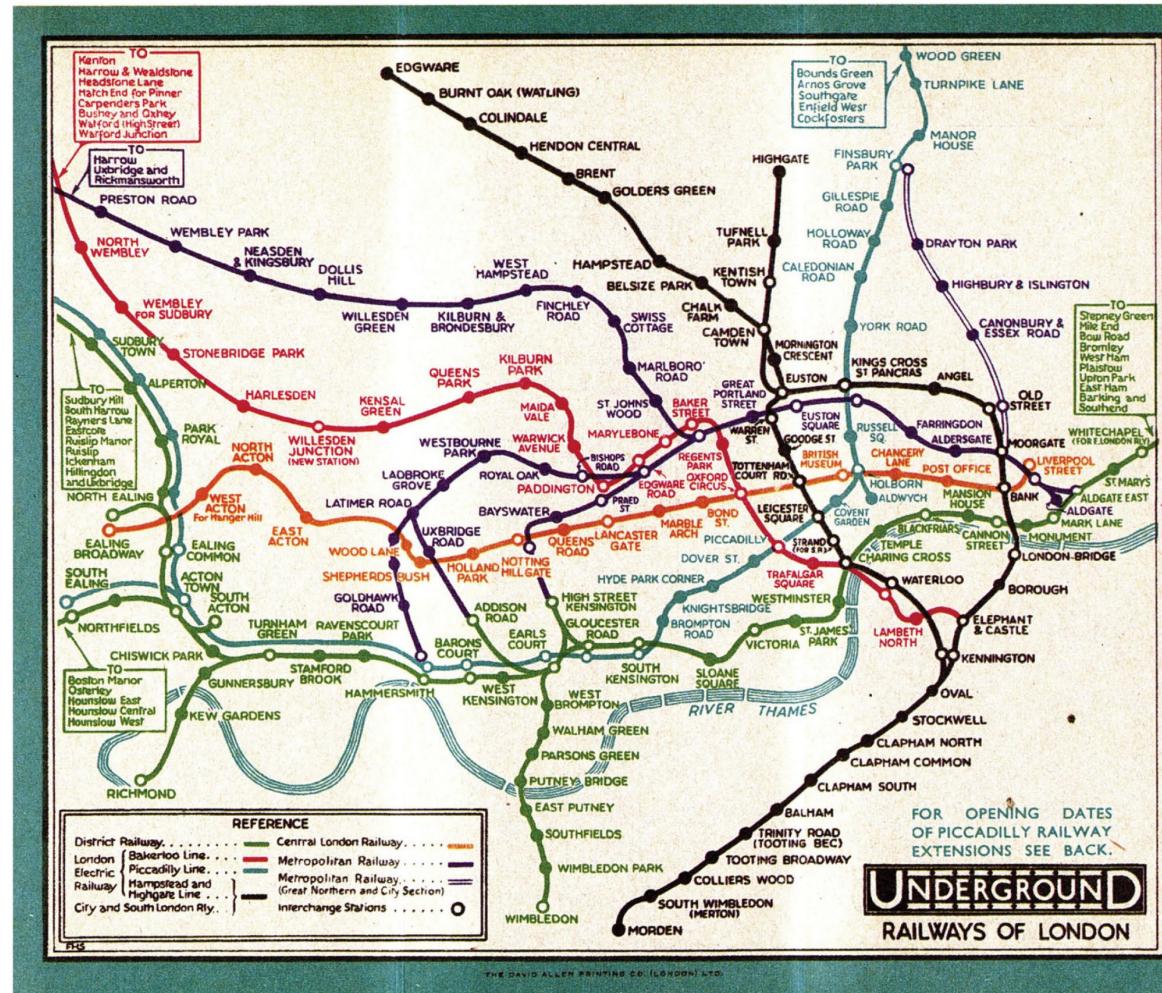
Avec la permission de Regnier, 8. Pas. S^e Marie S^e G^e à Paris.

CHARLES MINARD, 1869



HISTORY: UNVEILING SYSTEMS

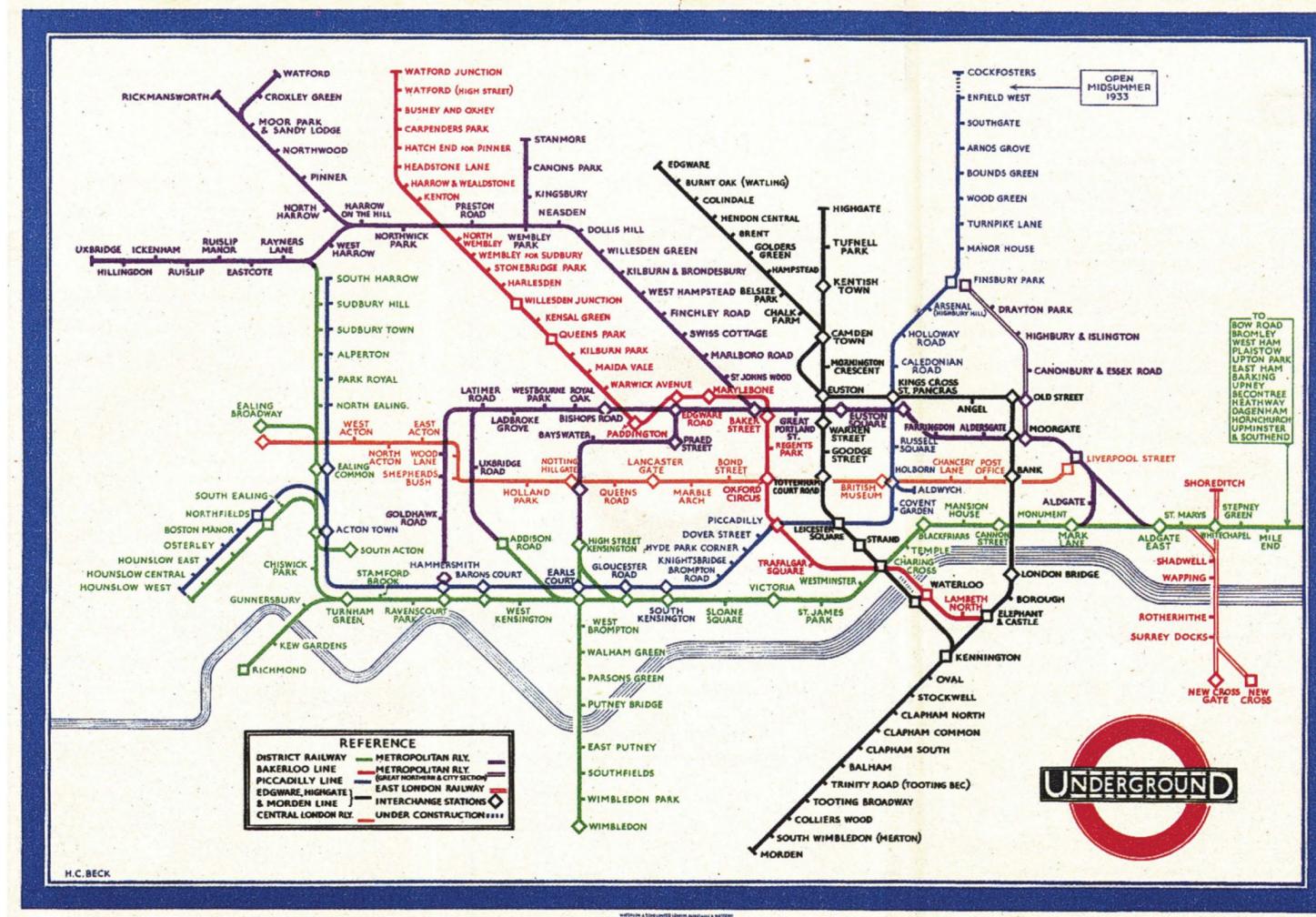
LONDON UNDERGROUND





HISTORY: UNVEILING SYSTEMS

LONDON UNDERGROUND

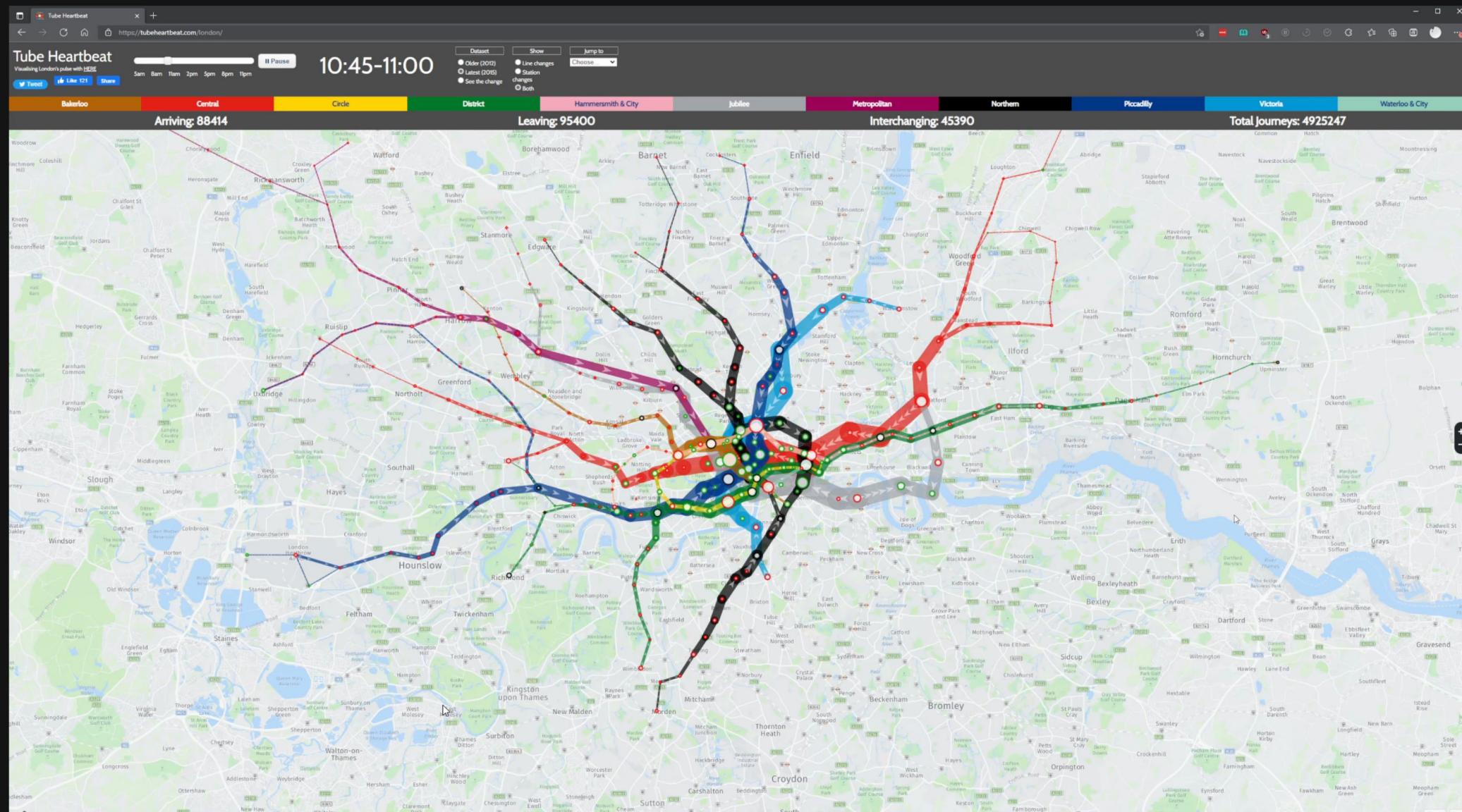


HENRY CHARLES BECK, TUBE MAP 1933



HISTORY: UNVEILING SYSTEMS

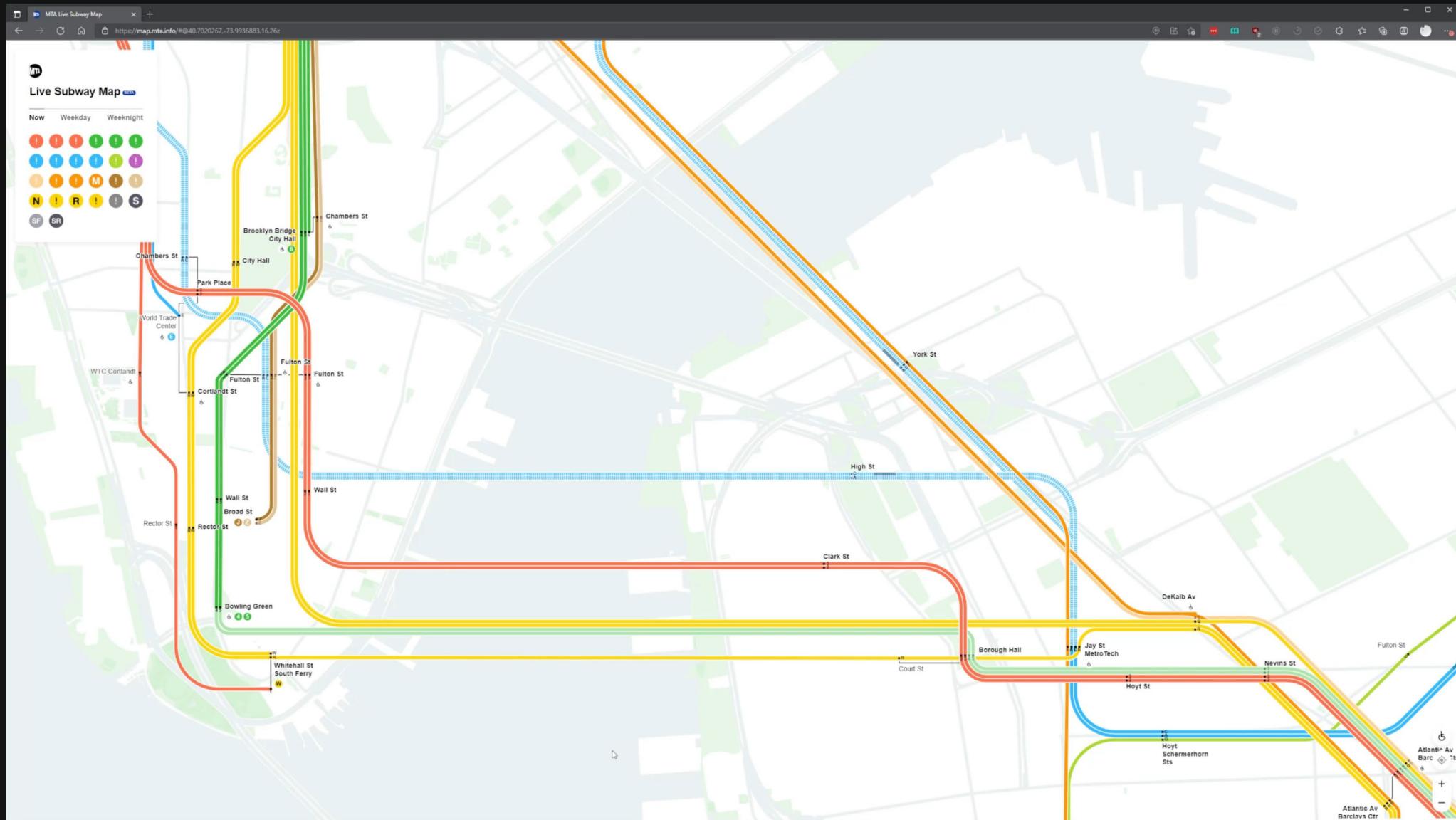
LONDON HEART BEAT. ANIMATION



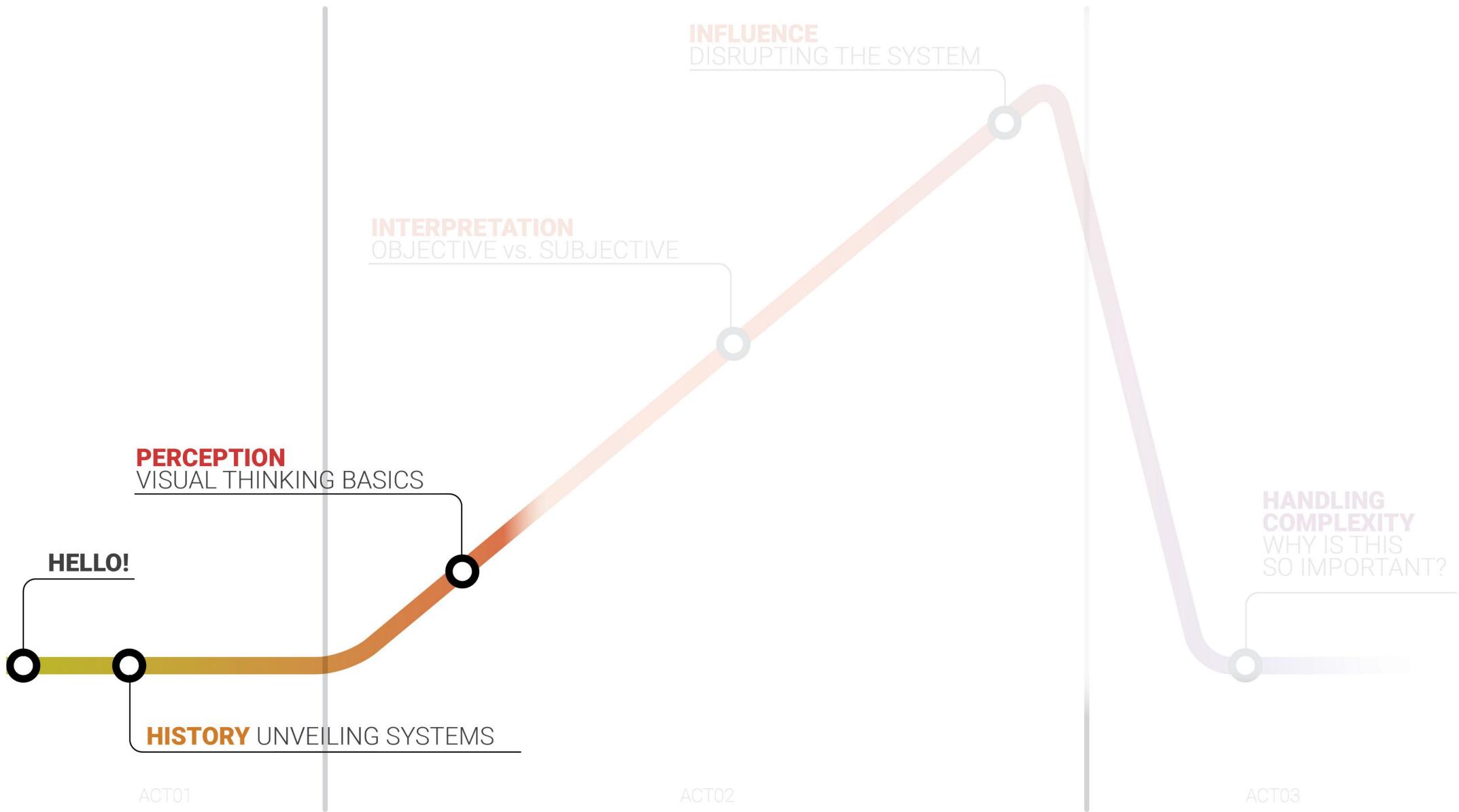
OLIVER O'BRIEN
2016

HISTORY: UNVEILING SYSTEMS

NYC MTA LIVE MAP: INTERACTIVITY



OUR PLOT



“Visual thinking consists of a series of acts of attention, driving eye movements and tuning our pattern-finding circuits.”

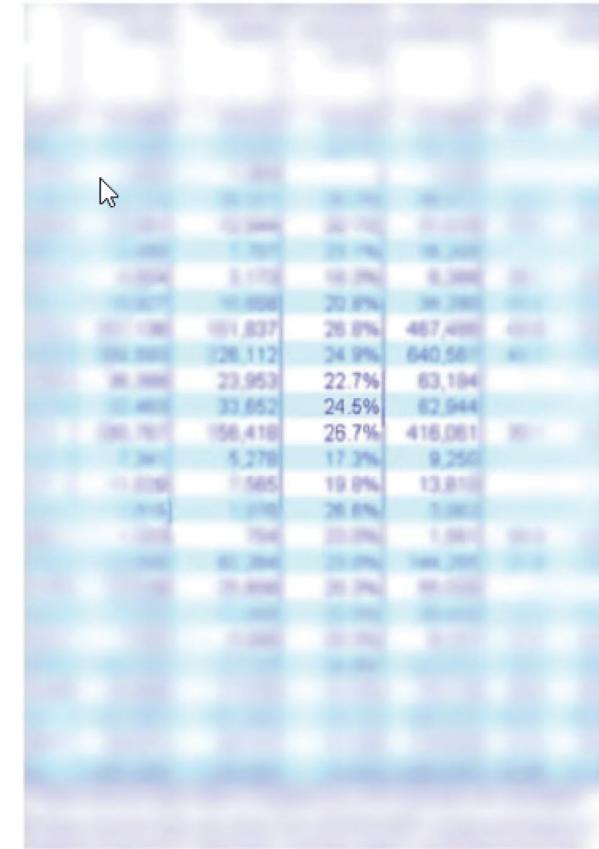
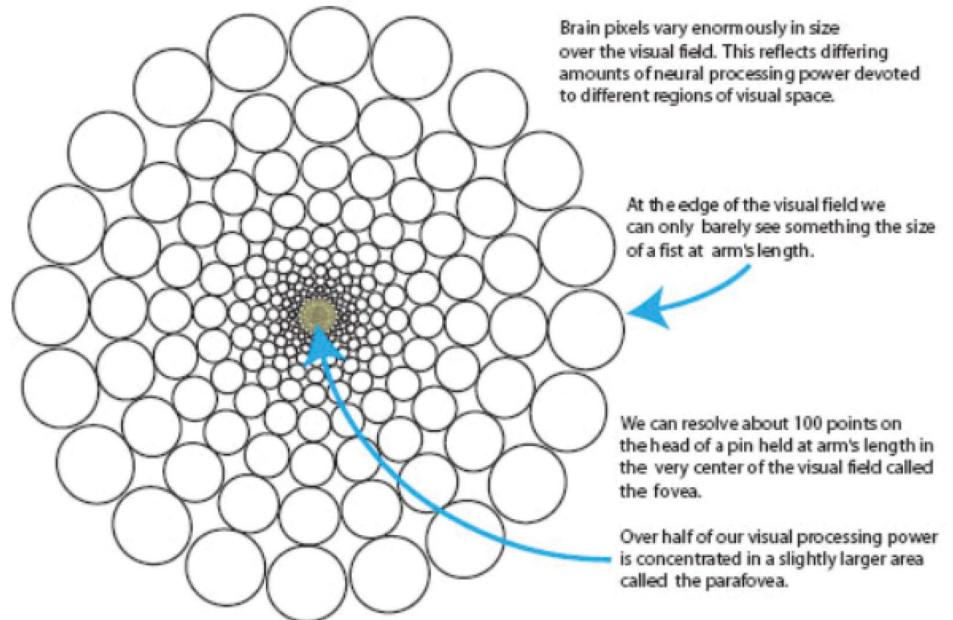
PERCEPTION: VISUAL THINKING BASICS

"Science of graphic design based on a scientific understanding of visual attention and pattern perception."



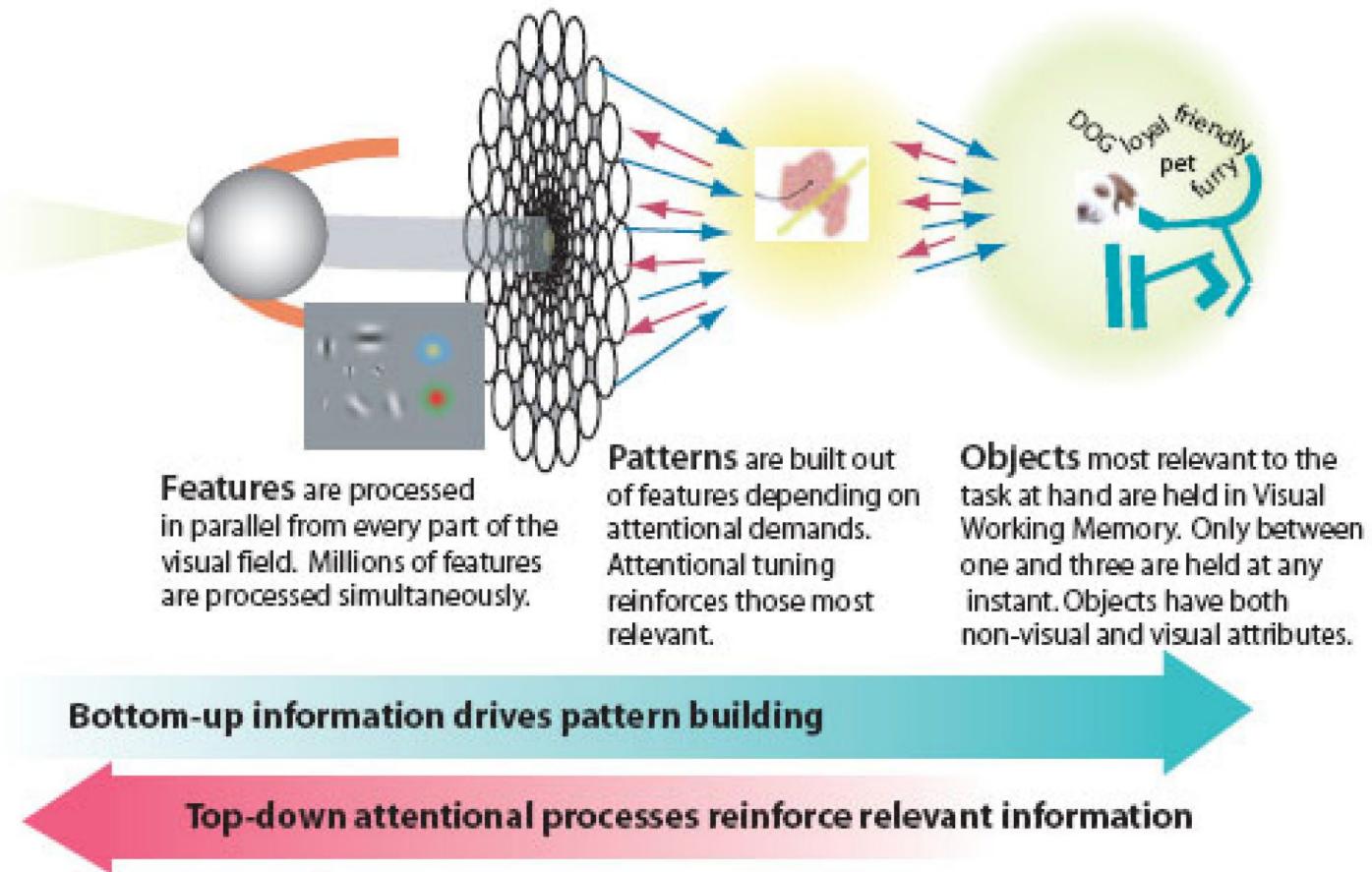
PERCEPTION: VISUAL THINKING BASICS

DETECTION FIELD



PERCEPTION: VISUAL THINKING BASICS

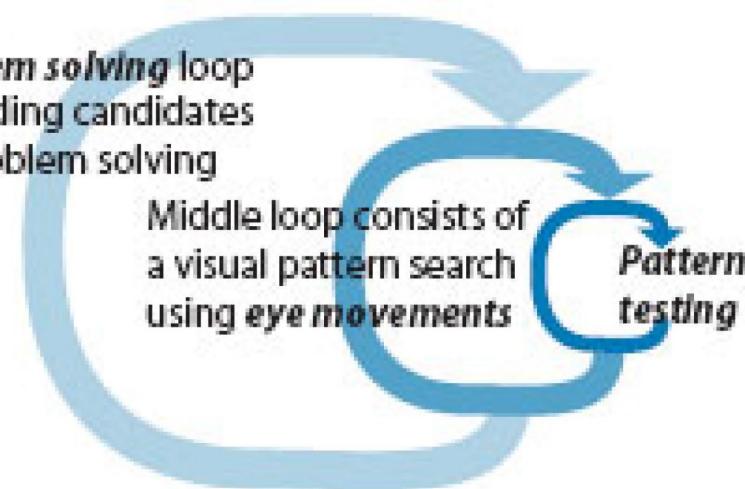
BOTTOM-UP, TOP-DOWN



PERCEPTION: VISUAL THINKING BASICS

NESTED LOOPS: HOW THE BRAIN OPERATES TO SOLVE PROBLEMS

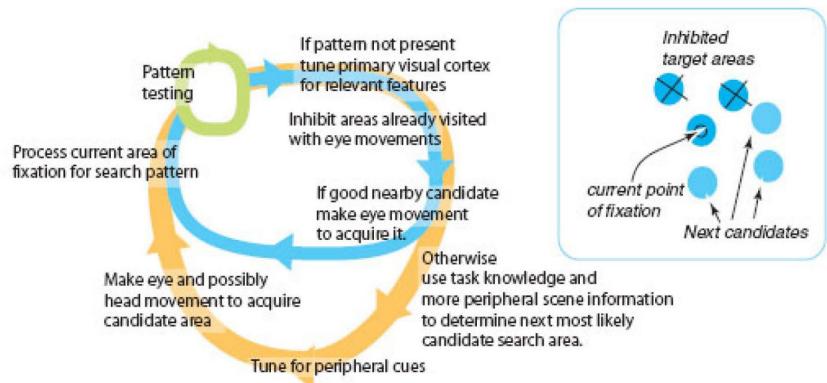
OUTER LOOPS DEAL WITH GENERALITIES. / INNER LOOPS PROCESS THE DETAILS.



PERCEPTION: VISUAL THINKING BASICS

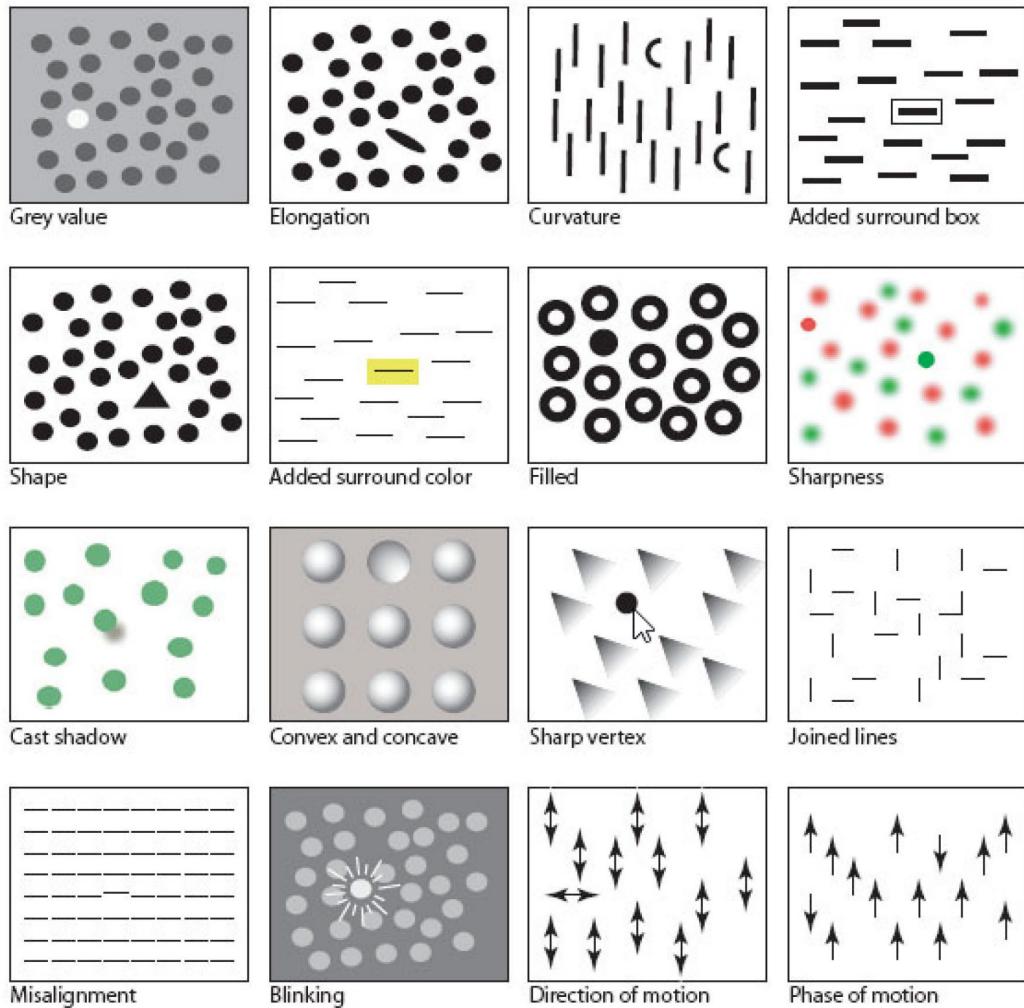
VISUAL ATTENTION AND PATTERN PERCEPTION

“Science of graphic design based on a scientific understanding of visual attention and pattern perception.”



THE PROCESS OF SEARCH

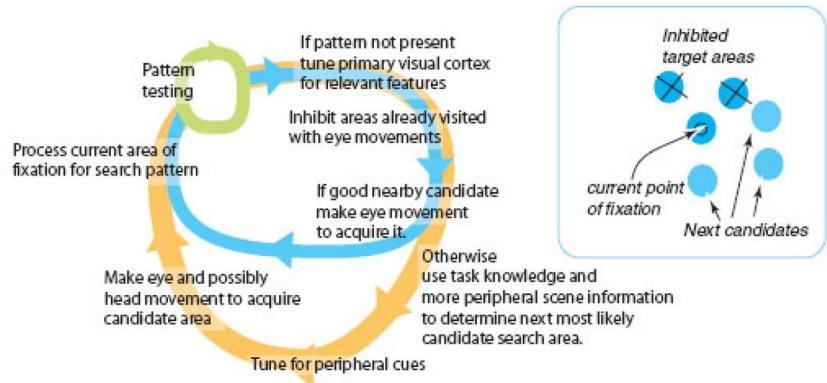
POP-OUT PROPERTIES



PERCEPTION: VISUAL THINKING BASICS

VISUAL ATTENTION AND PATTERN PERCEPTION

“Science of graphic design based on a scientific understanding of visual attention and pattern perception.”



THE PROCESS OF SEARCH

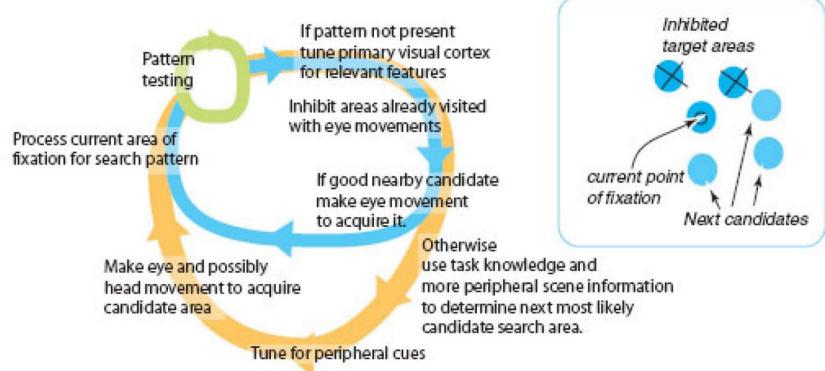
SEMANTICS

| Graphical Code | Semantics |
|---|--|
| Shapes connected by contour. | Related entities, path between entities. |
| Thickness of connecting contour. | Strength of relationship. |
| Color and texture of connecting contour. | Type of relationship. |
| Shapes enclosed by a contour, or a common texture, or a common color. | Contained entities, Related entities. |
| Nested regions, partitioned regions. | Hierarchical concepts. |
| Attached shapes. | Parts of a conceptual structure. |

PERCEPTION: VISUAL THINKING BASICS

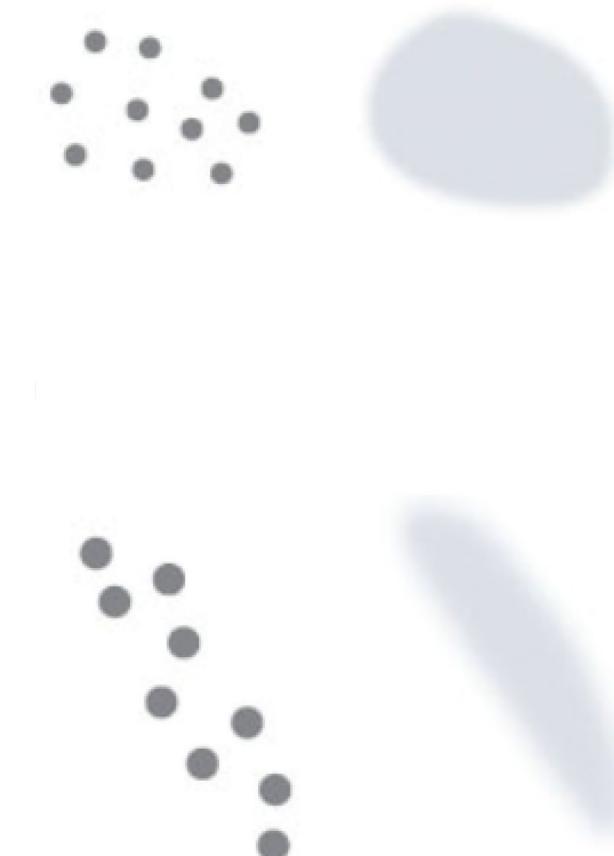
VISUAL ATTENTION AND PATTERN PERCEPTION

“Science of graphic design based on a scientific understanding of visual attention and pattern perception.”



THE PROCESS OF SEARCH

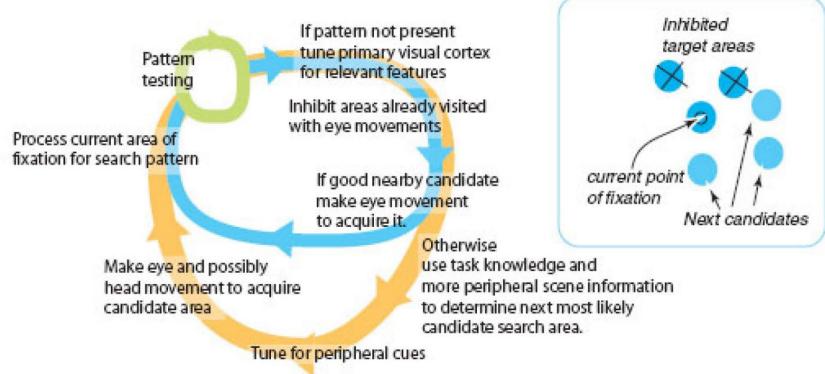
SPATIAL LAYOUT



PERCEPTION: VISUAL THINKING BASICS

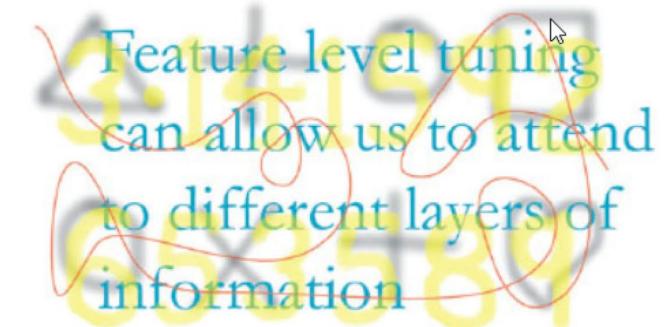
VISUAL ATTENTION AND PATTERN PERCEPTION

“Science of graphic design based on a scientific understanding of visual attention and pattern perception.”



THE PROCESS OF SEARCH

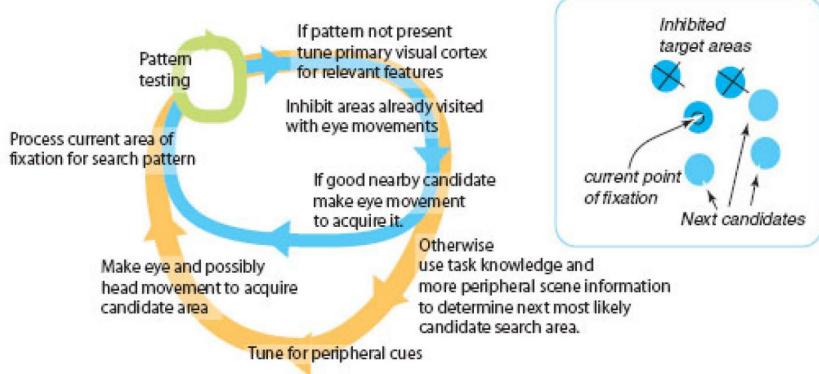
PATTERN DETECTION



PERCEPTION: VISUAL THINKING BASICS

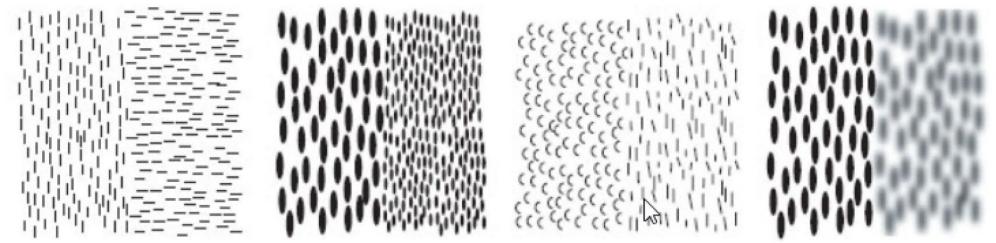
VISUAL ATTENTION AND PATTERN PERCEPTION

“Science of graphic design based on a scientific understanding of visual attention and pattern perception.”



THE PROCESS OF SEARCH

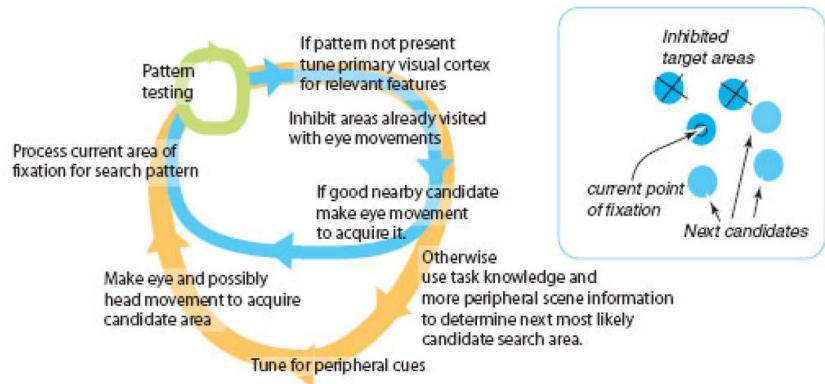
PATTERN DETECTION



PERCEPTION: VISUAL THINKING BASICS

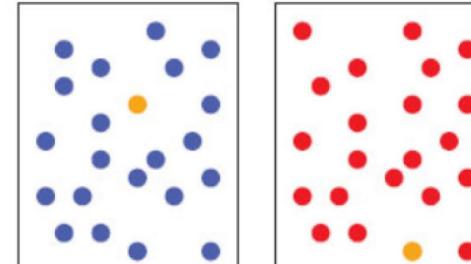
VISUAL ATTENTION AND PATTERN PERCEPTION

“Science of graphic design based on a scientific understanding of visual attention and pattern perception.”

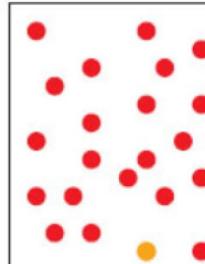


THE PROCESS OF SEARCH

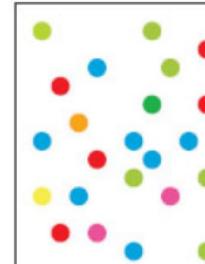
COLOR THEORY



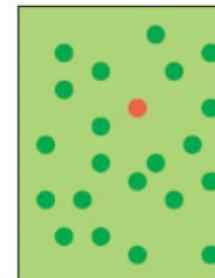
- The larger the chromatic difference between the target symbol and the other symbols, the easier the search.



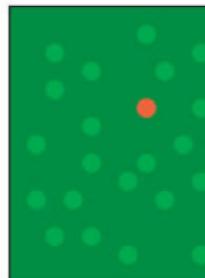
- When there is only a small color difference from non-target symbols, the search is difficult.



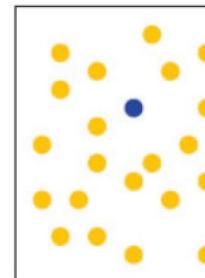
- When there are many non-target symbol colors, the search is the most difficult.



- If non-target symbols are similar to the background, they are easy to exclude from the visual search.

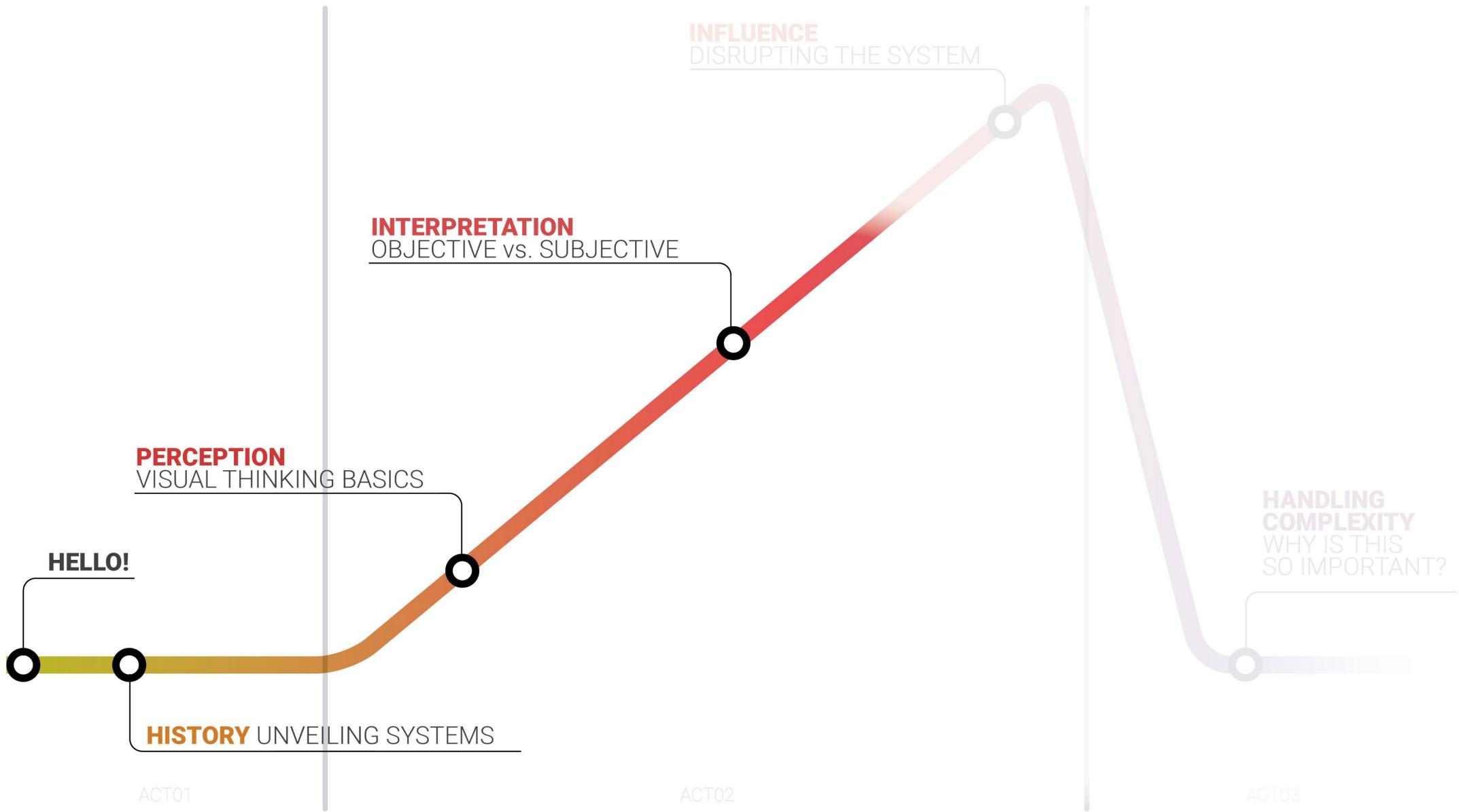


- A luminance difference plus a chromatic difference from other symbols and the background leads to the easiest search.



- A dark target on a light background with light non-target symbols can be as effective as the reverse.

OUR PLOT



TWO WAYS OF SEEING A SYSTEM



'STAR GUITAR'- THE CHEMICAL BROTHERS
MICHEL GONDRY, 2001

TWO WAYS OF SEEING A SYSTEM

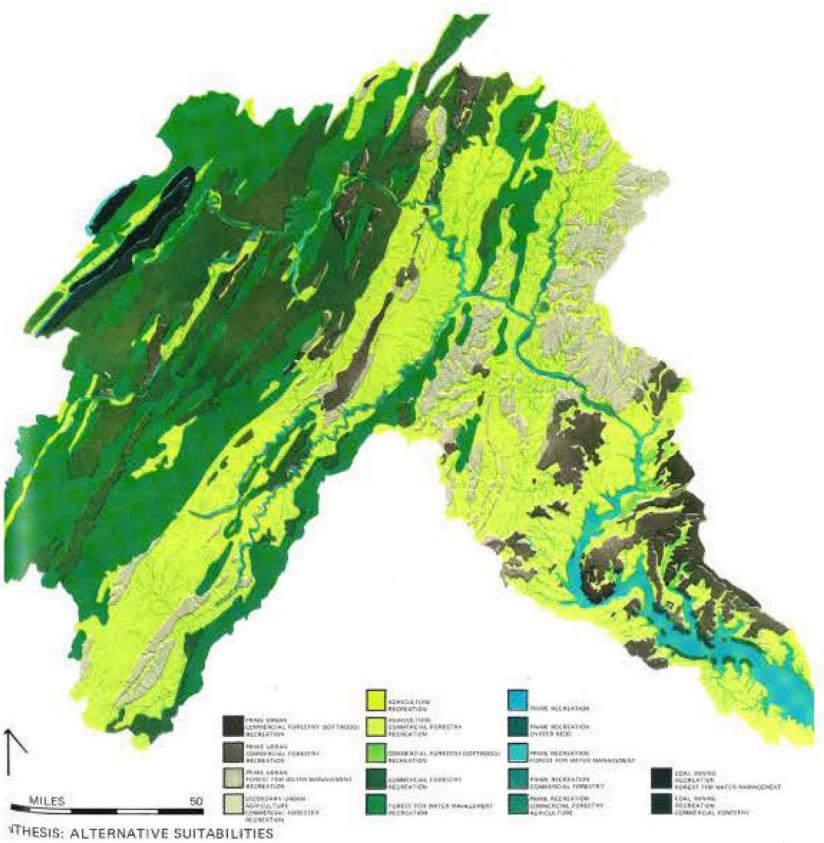


THEY LIVE

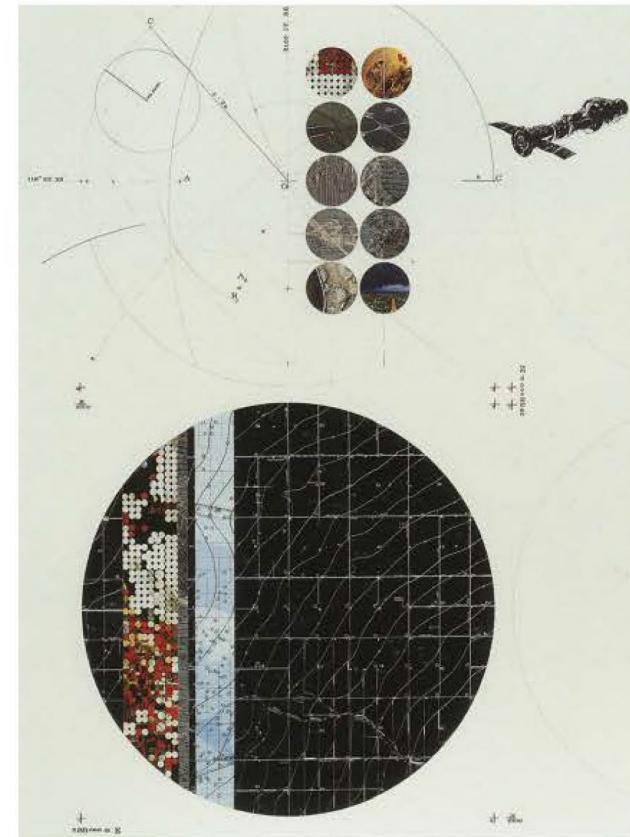
JOHN CARPENTER, 1988

DICHOTOMY BETWEEN TWO ESTABLISHED MODELS OF URBAN ANALYSIS

“MAKE A MAP, NOT A TRACING”



River Basin
McHarg



Mapping Agency
James Corner



INTERPRETATION: OBJECTIVE vs. SUBJECTIVE

HOW TO REPRESENT THE OCEAN: FOCUSING ON THE CONCEPT

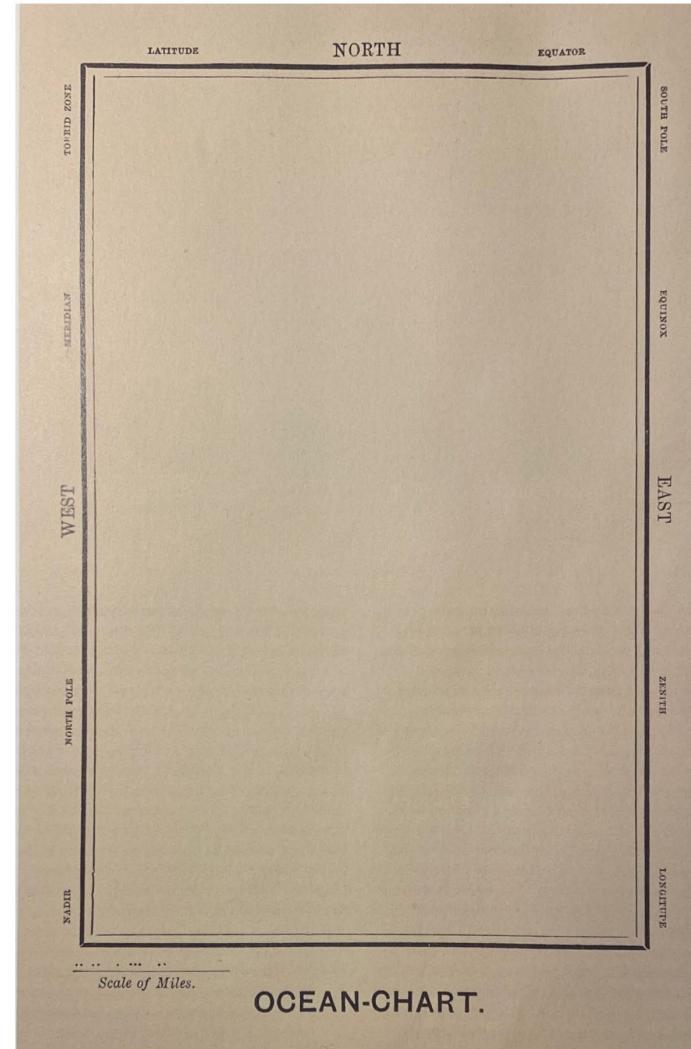
“He had bought a large map representing

the sea, without the least vestige of land:

And the crew were much pleased when

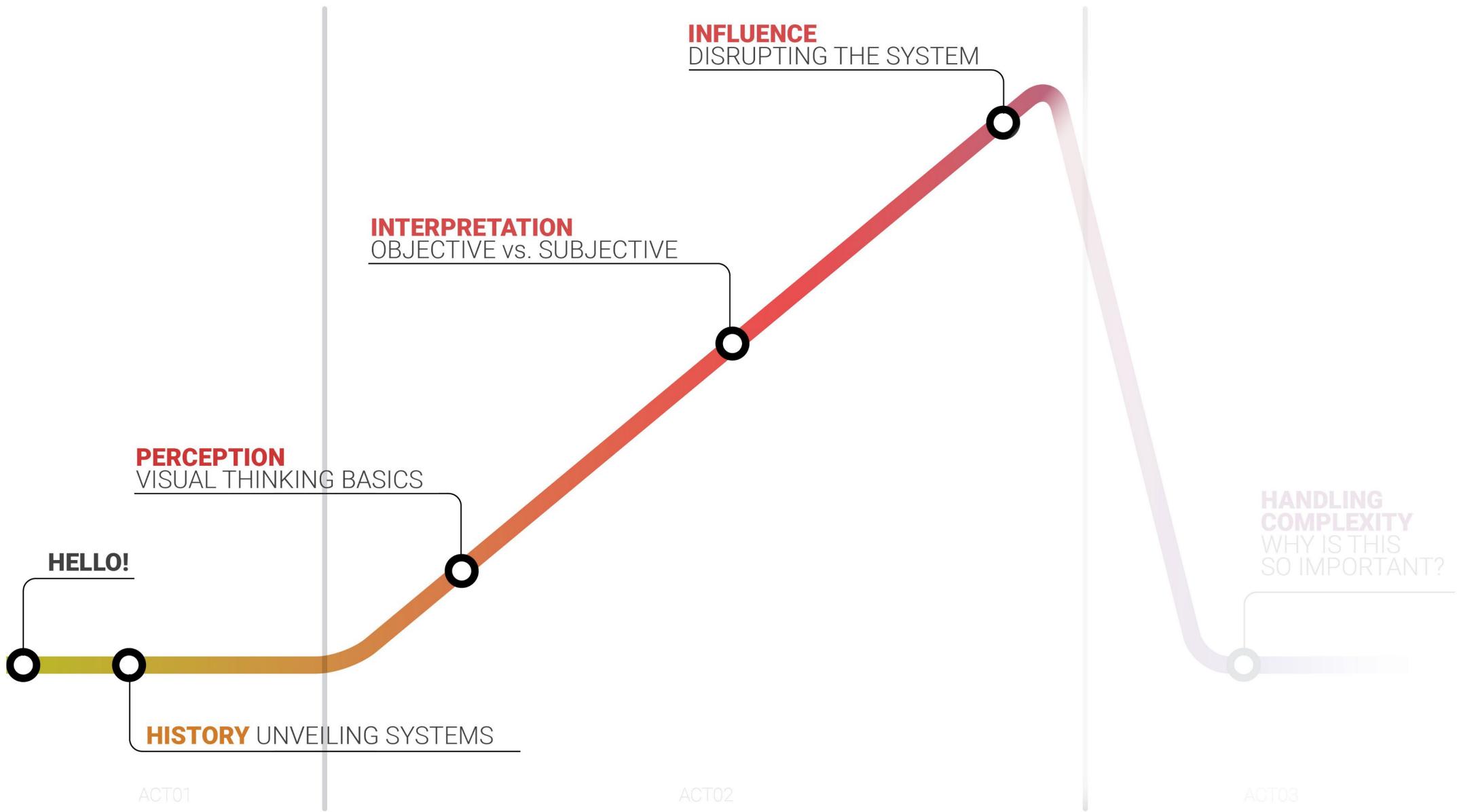
they found it to be a map they could all

understand.”



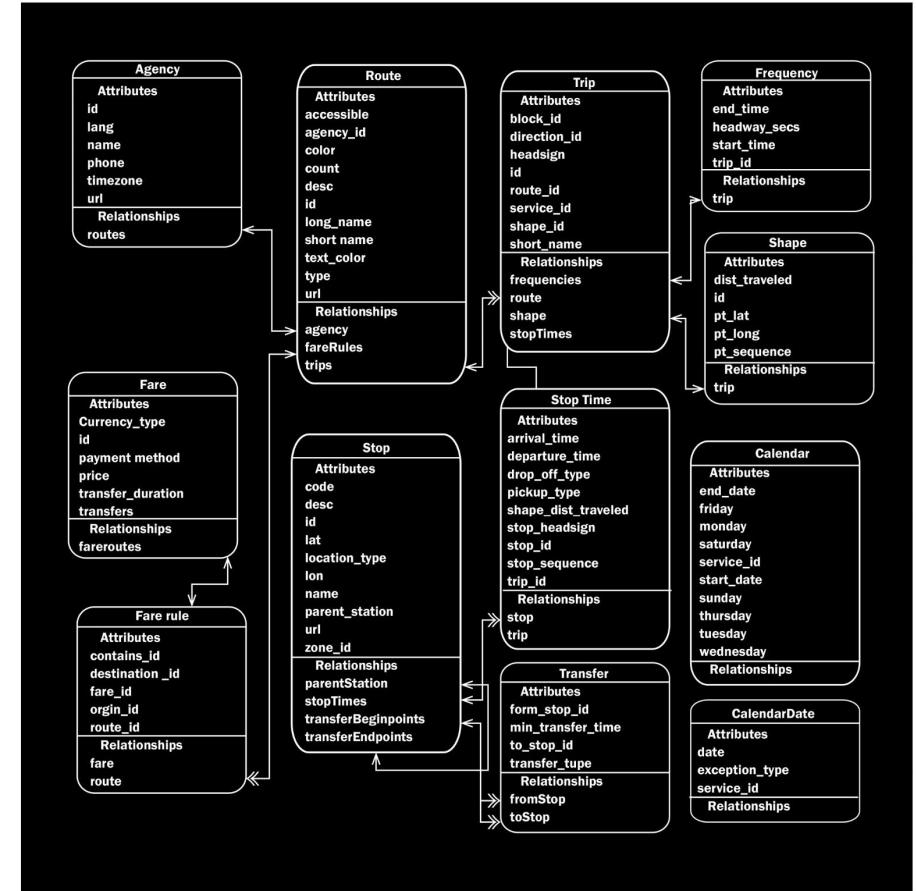
'BELLMAN'S MAP'
IN 'THE HUNTING OF THE SNARK'
LEWIS CARROLL. HENRY HOLIDAY, 1876

OUR PLOT



INFLUENCE: DISRUPTING THE SYSTEM

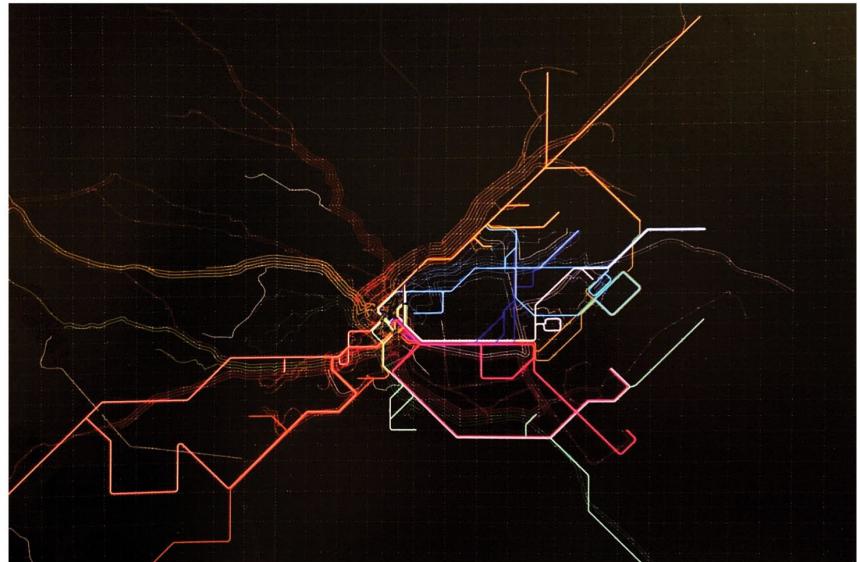
'MOVING IN NAIROBI': CREATION OF A TRANSPORT SYSTEM AS FORM OF CIVIC ACTION



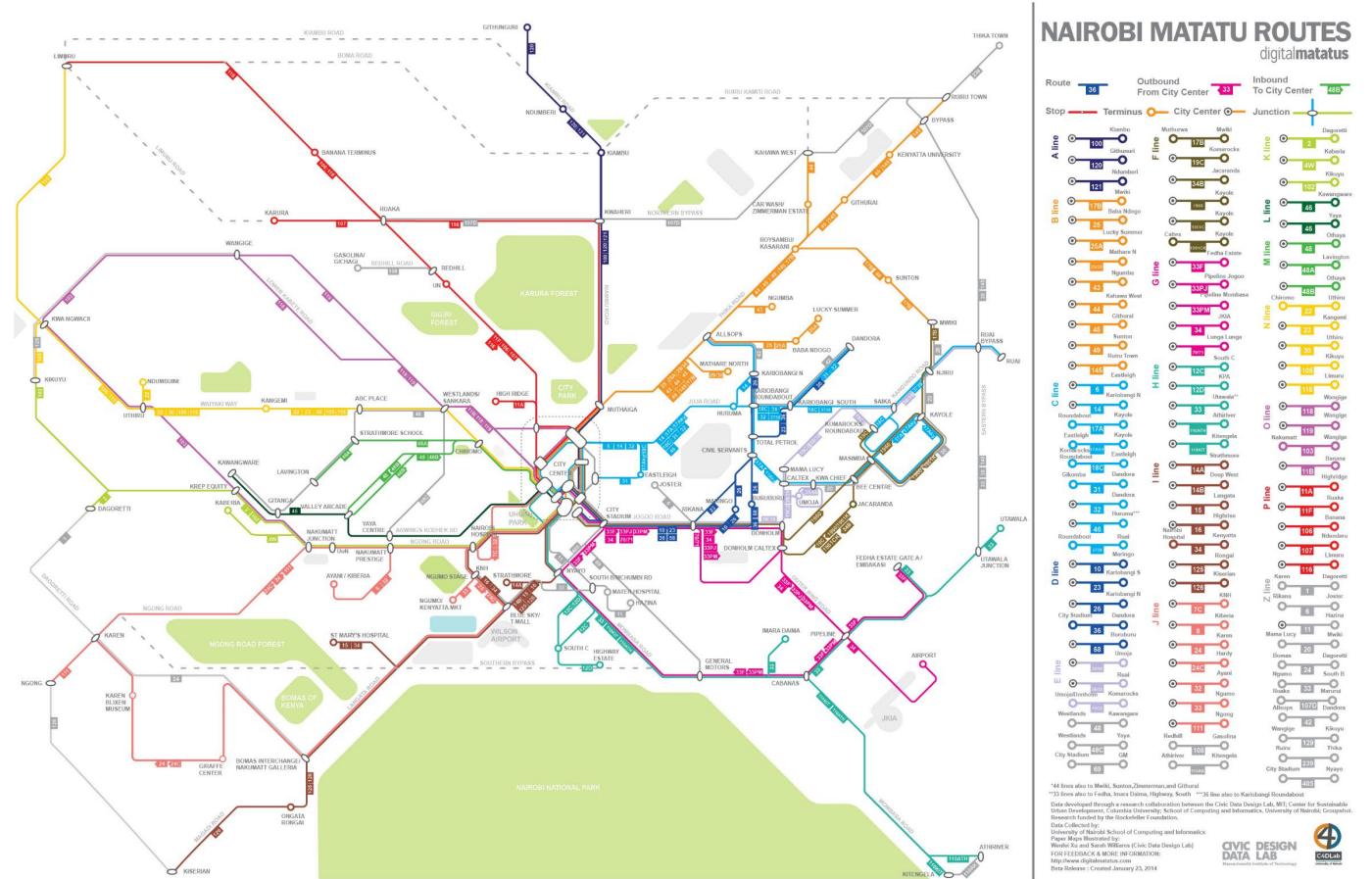
GFTS (General Transit Feed Specification) DATA

INFLUENCE: DISRUPTING THE SYSTEM

'MOVING IN NAIROBI': CREATION OF A TRANSPORT SYSTEM AS FORM OF CIVIC ACTION



RAW DATA VISUALIZATION

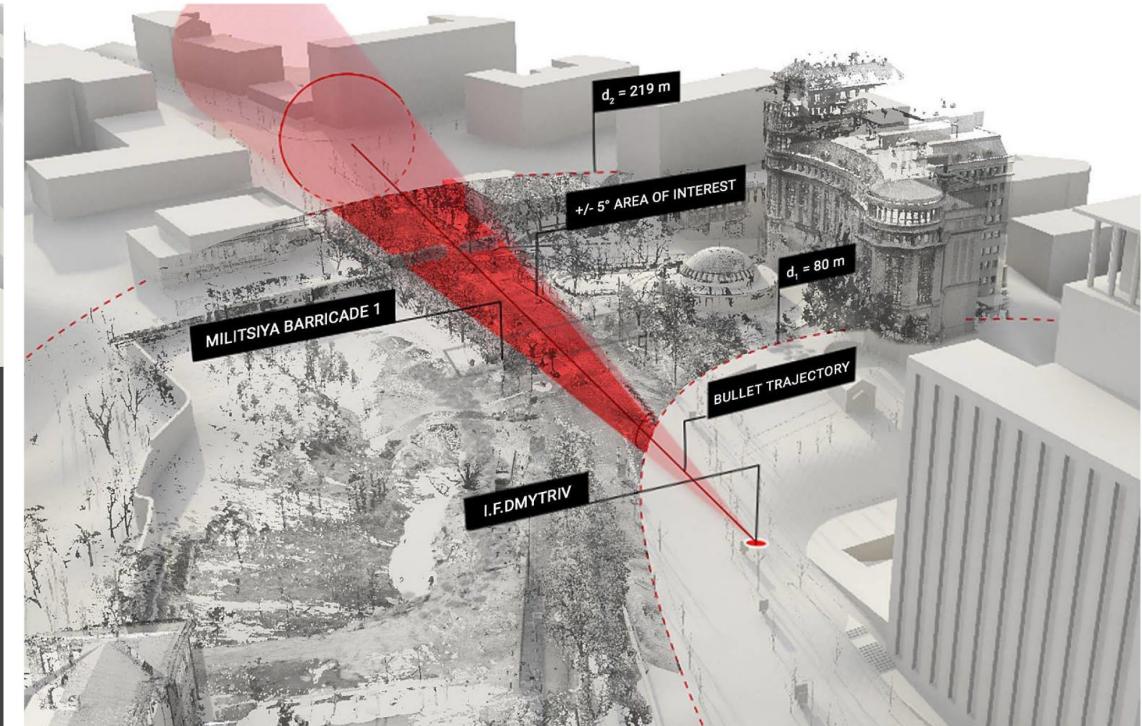


STANDARDIZED TRANSPORT FORMAT

'DIGITAL MATATU PROJECT'
SARAH WILLIAMS, 2015

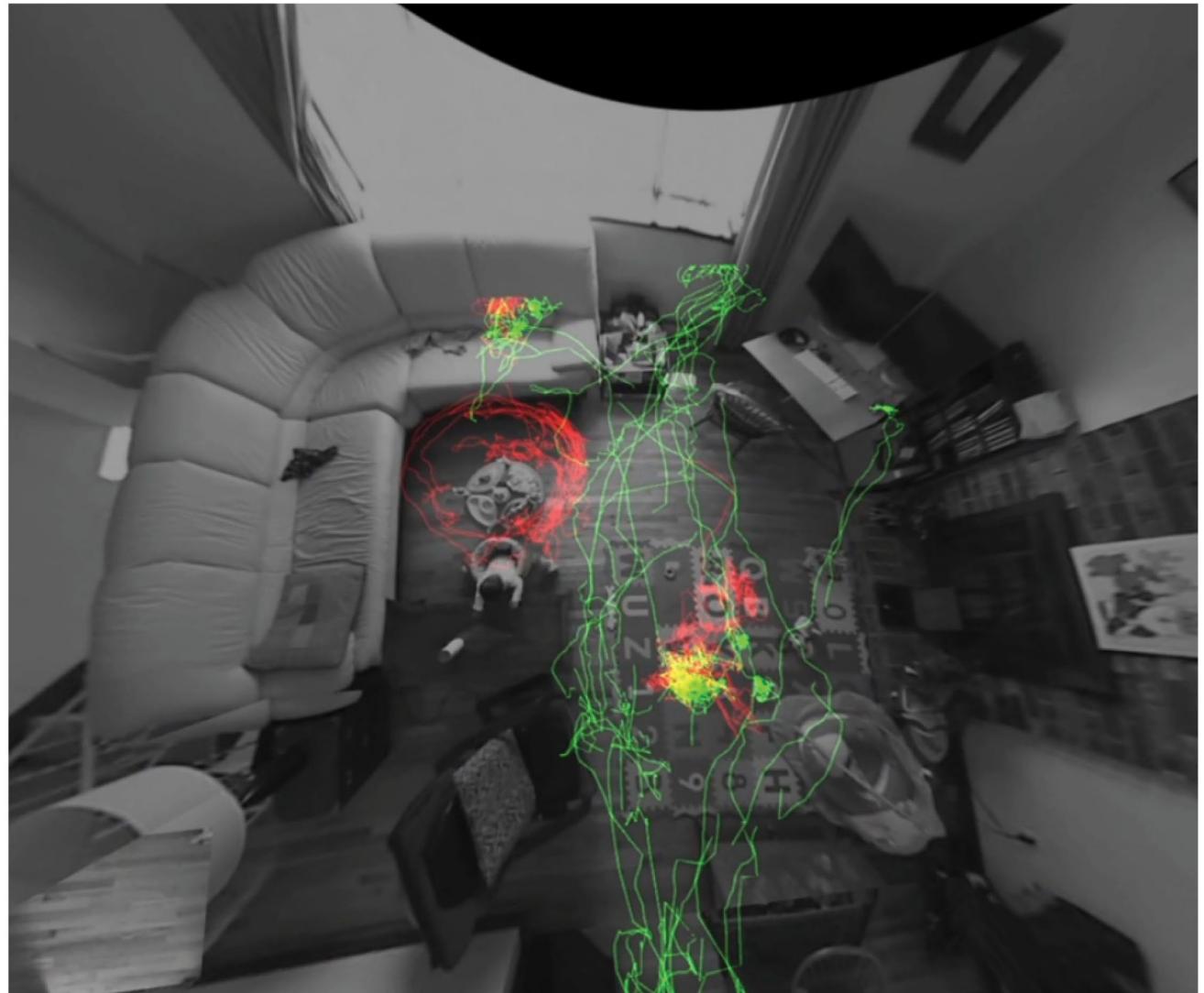
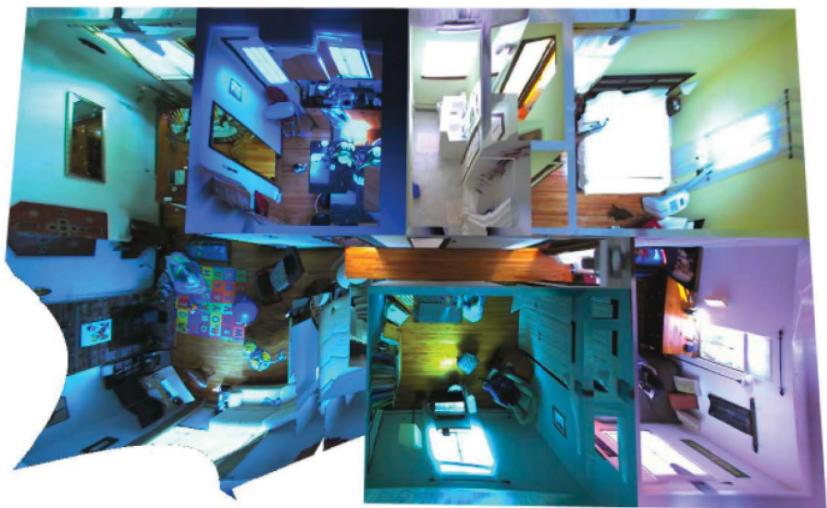
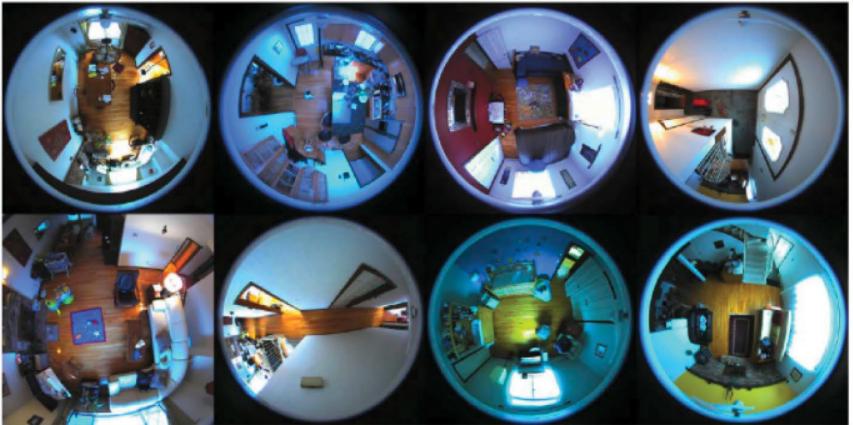
INFLUENCE: DISRUPTING THE SYSTEM

A SYSTEMATIZED WAY OF UNCOVERING THE TRUTH



INFLUENCE: DISRUPTING THE SYSTEM

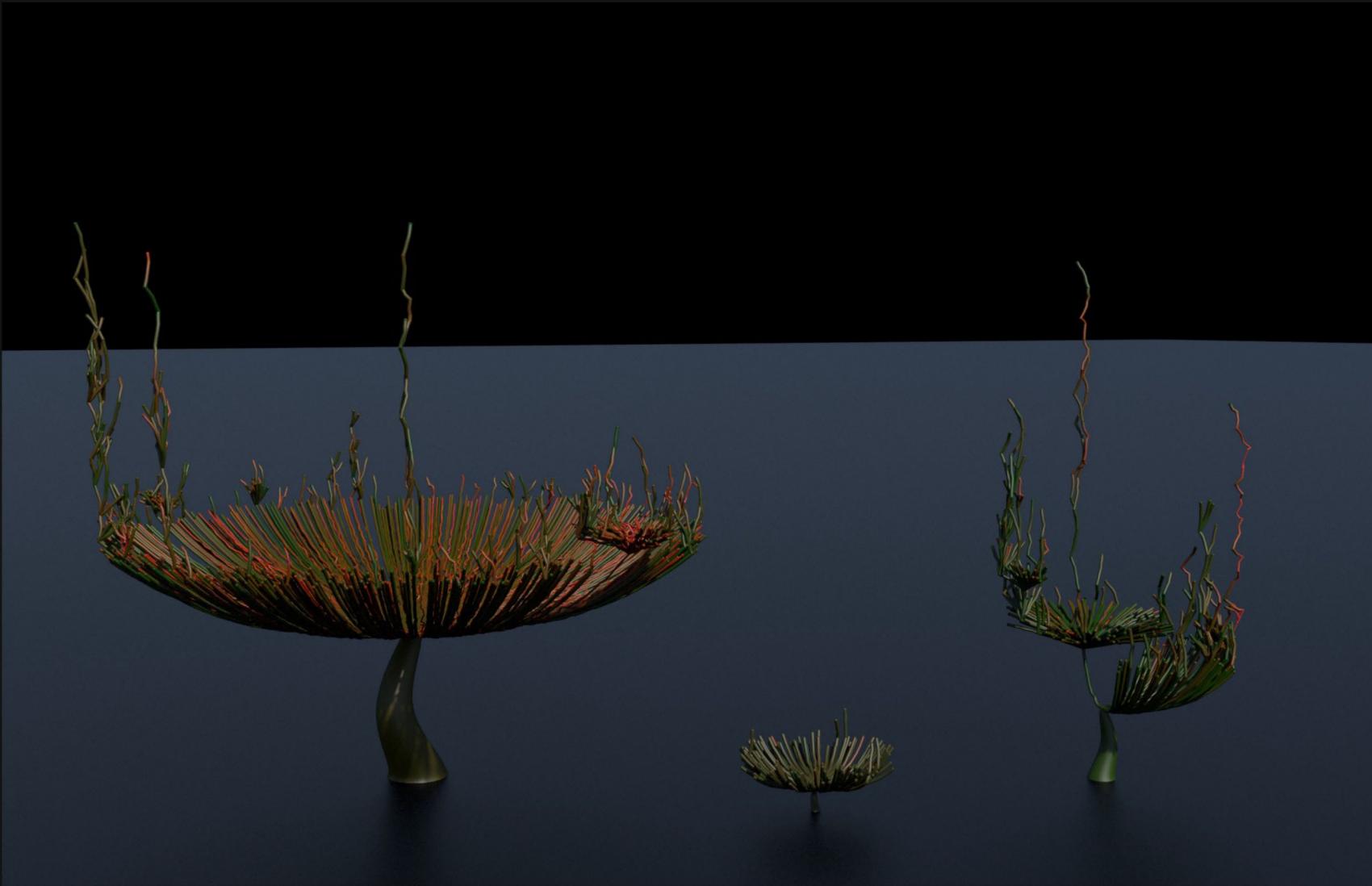
THE CREATION OF A SYSTEM TO ANALYZE COMPLEXITY



'THE BIRTH OF A WORD'
DEB ROY, 2013

INFLUENCE: DISRUPTING THE SYSTEM

HOW TO REPRESENT CONVERSATIONS

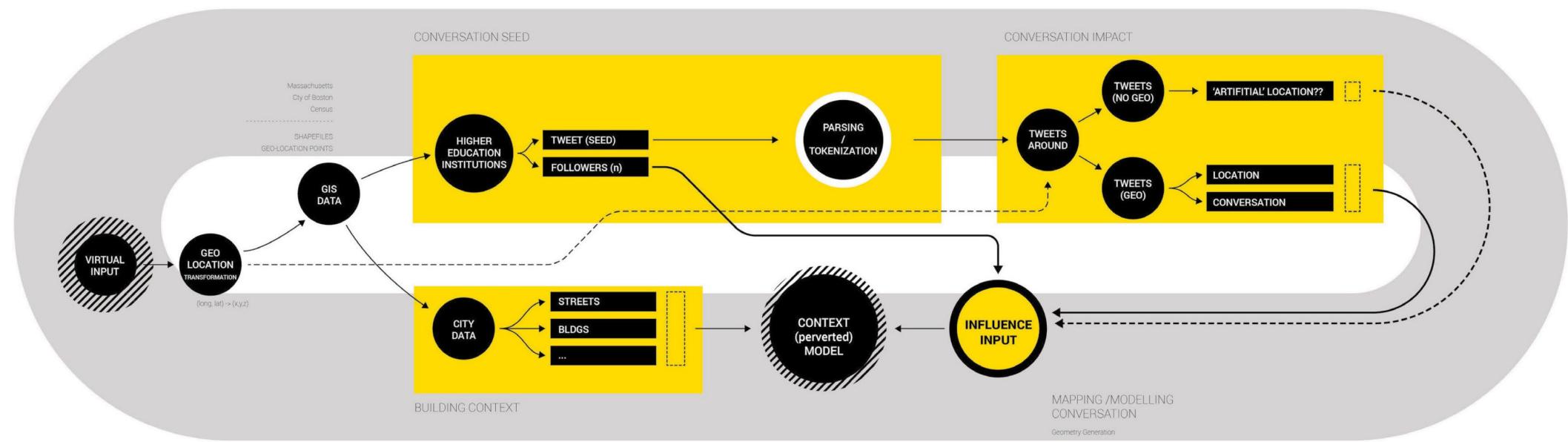


'TOXICITY IN TWEET CONVERSATIONS'

DEB ROY, PETER BEHAI, 2018

INFLUENCE: DISRUPTING THE SYSTEM

"Following the Conversation" Experiment



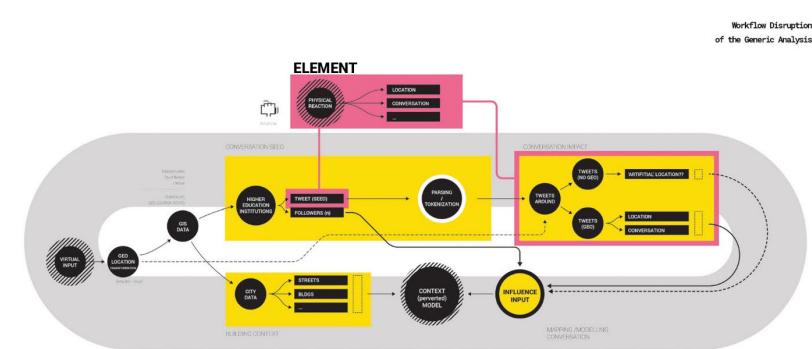
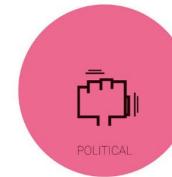
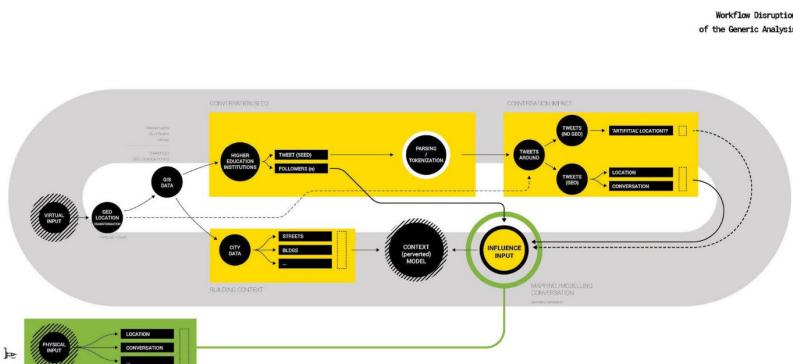
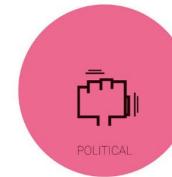
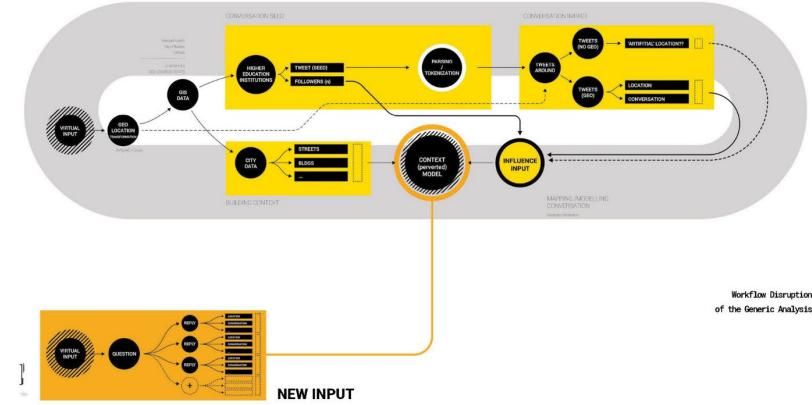
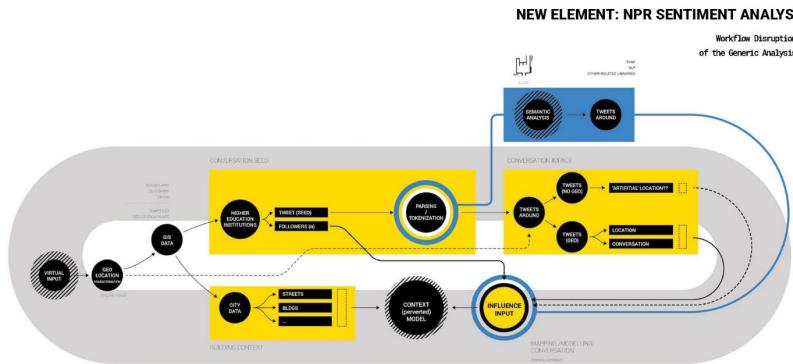
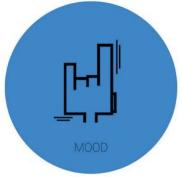
INFLUENCE: DISRUPTING THE SYSTEM

"Following the Conversation" Experiment

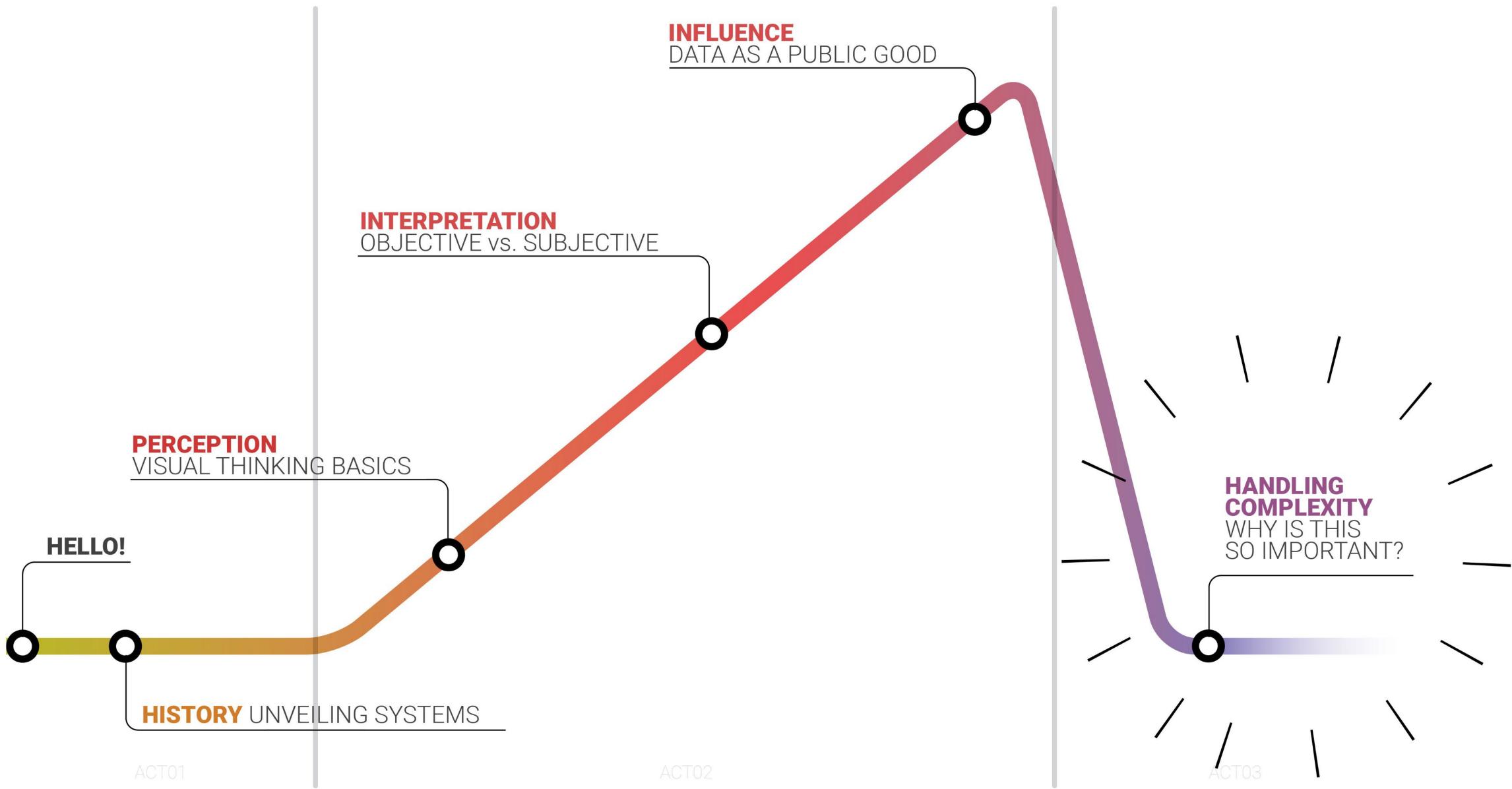


INFLUENCE: DISRUPTING THE SYSTEM

“Following the Conversation” Experiment on Altering the Behavior of a System



OUR PLOT



HANDLING COMPLEXITY: WHY IS THIS SO IMPORTANT?

FROM A FUNCTIONAL POINT OF VIEW

- IDENTIFY MISTAKES IN COLLECTION PROCESSING
- FIND VIOLATIONS OF STATISTICAL ASSUMPTIONS
- OBSERVE PATTERNS IN THE DATA
- TO MAKE HYPOTHESIS