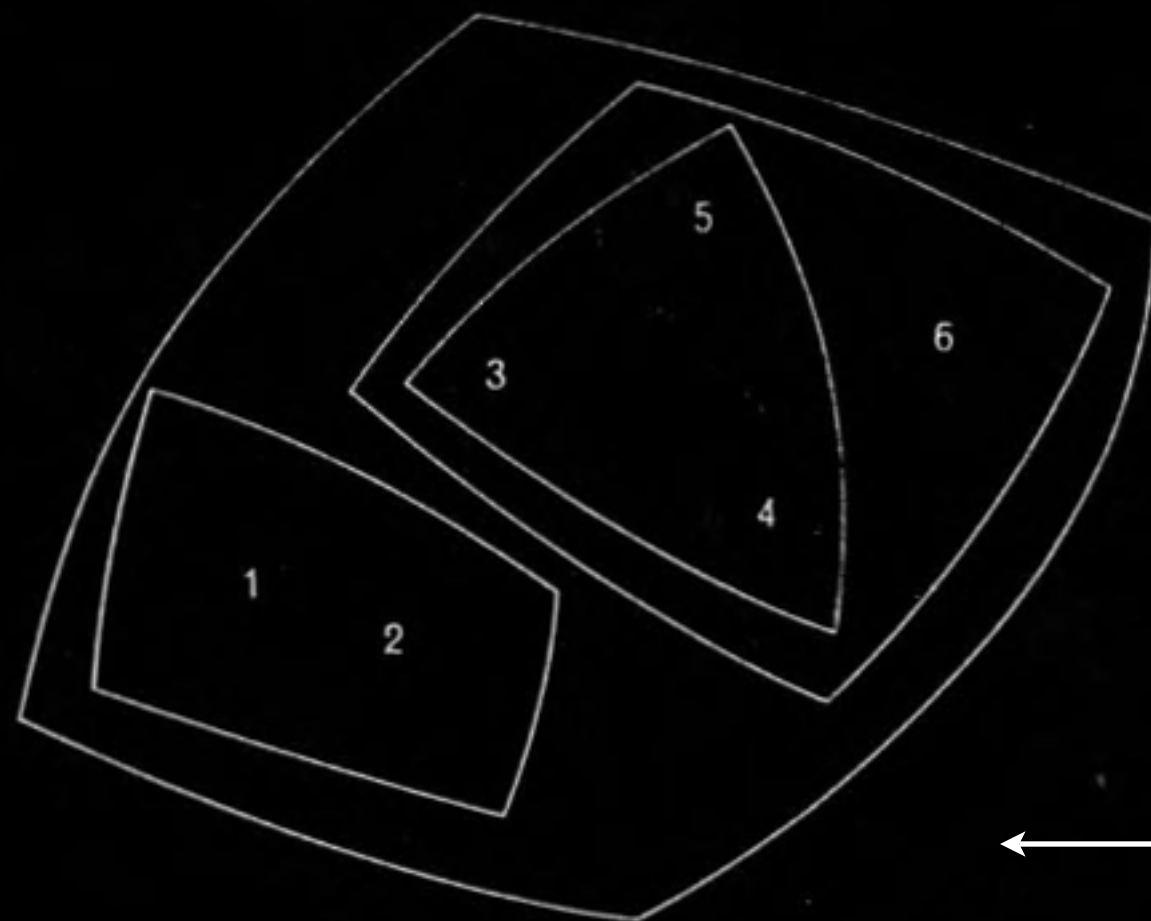
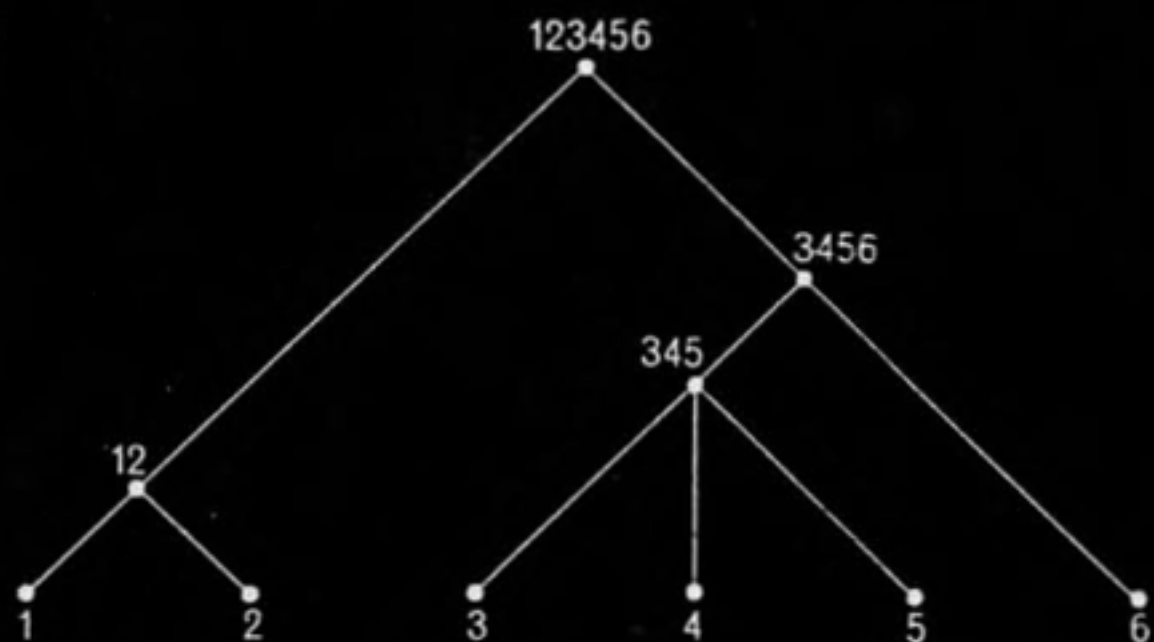


# Intentionally *Intensional* Information Architecture

IA Summit 2017  
[doriantaylor.com](http://doriantaylor.com)  
[@doriantaylor](https://twitter.com/doriantaylor)

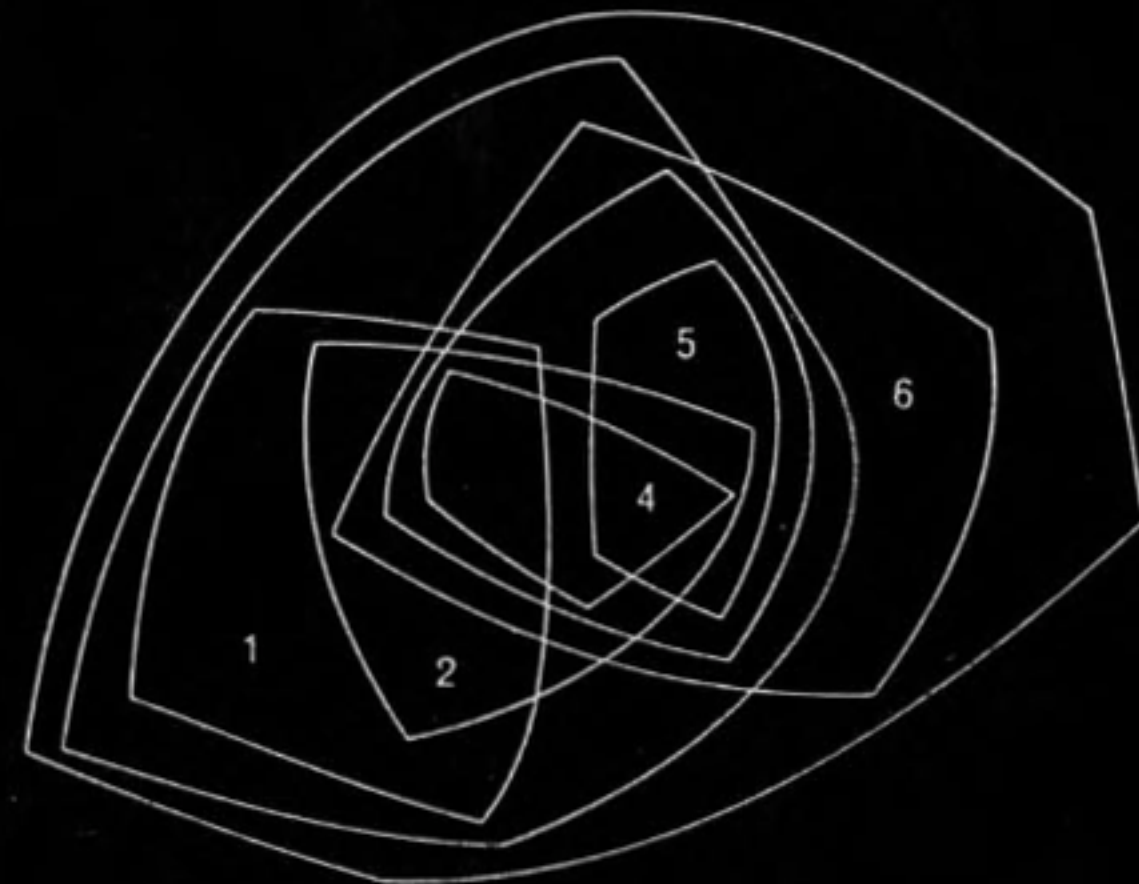
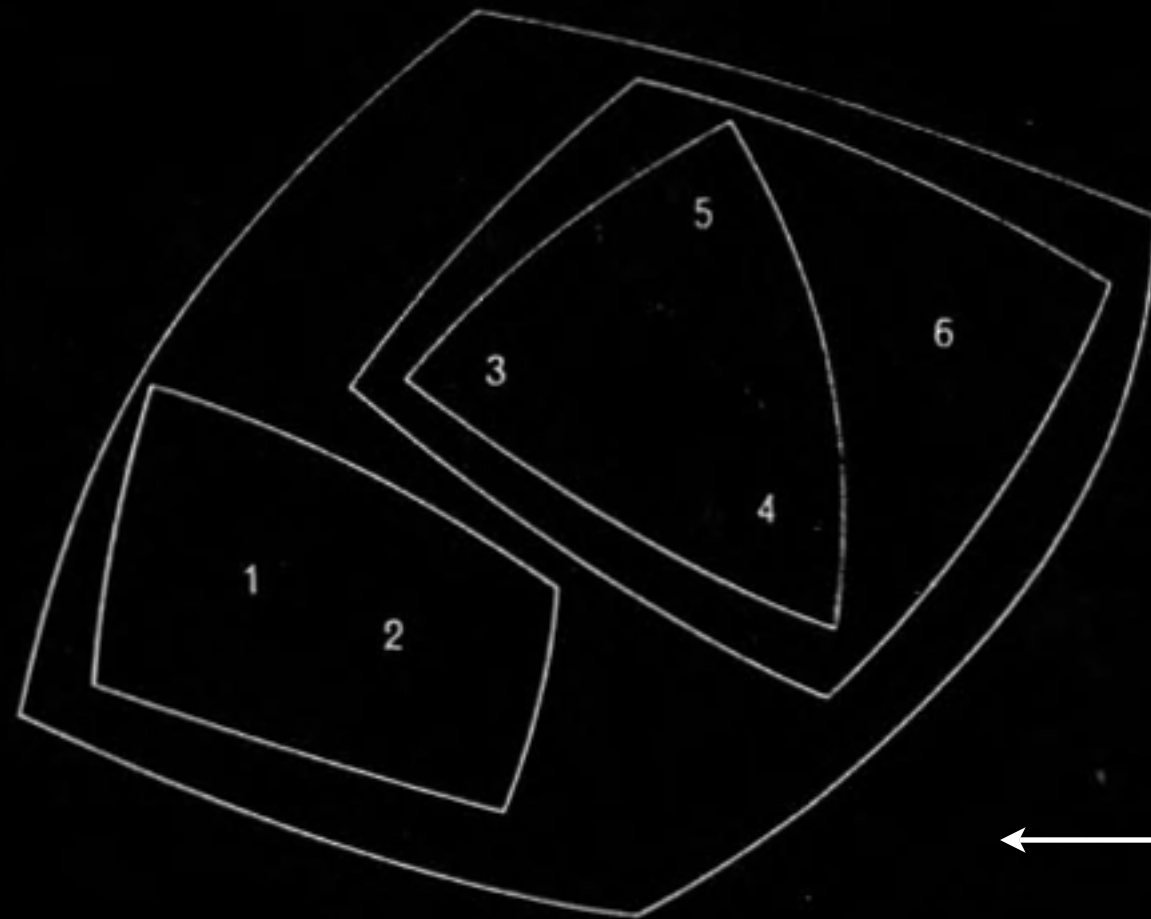


Too much

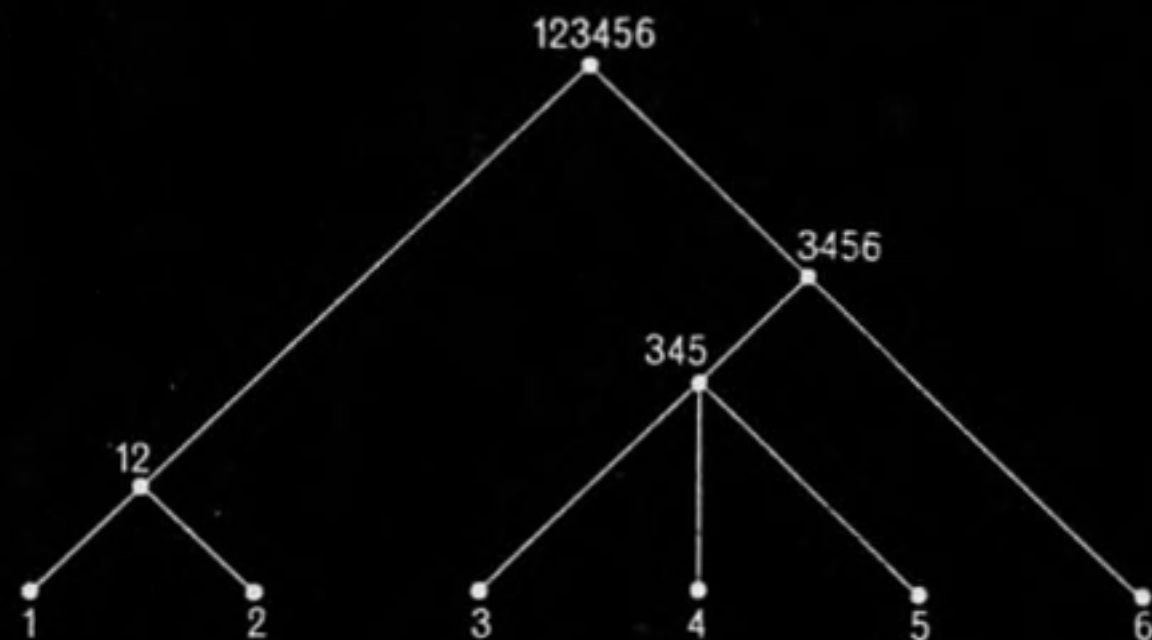


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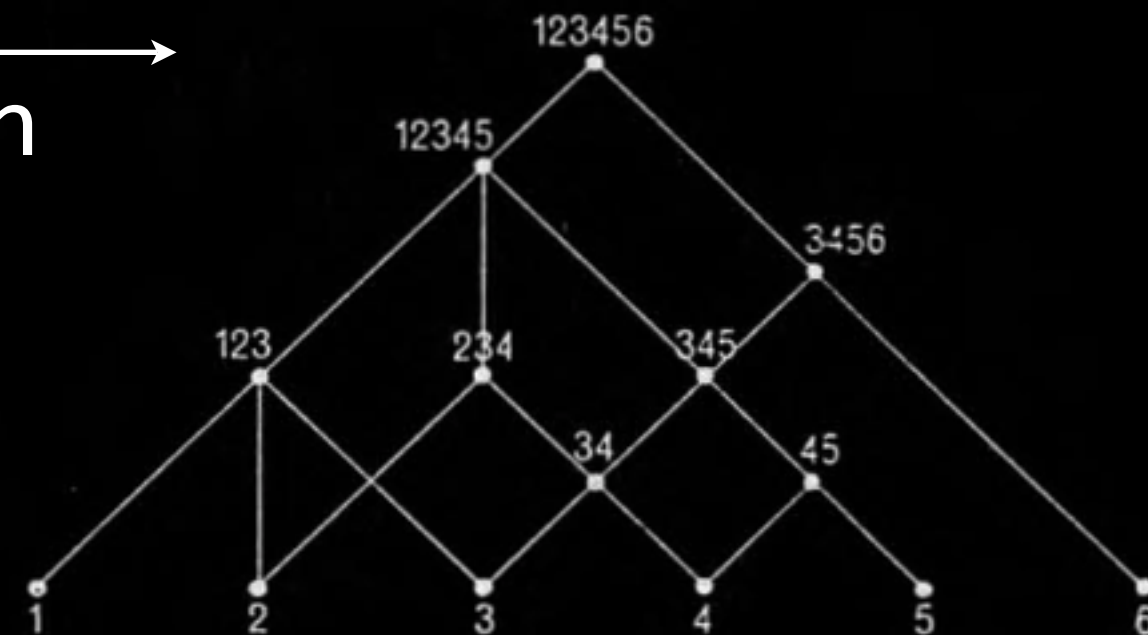
make things. make sense.



Too much



Not enough



“New media are new archetypes, at first disguised as degradations of older media.”

“New technological environments are commonly cast in the molds of the preceding technology out of the sheer unawareness of their designers.”

“New media are new languages, their grammar and syntax yet unknown.”

**(obligatory McLuhanisms)**

**Wikipedia:**

Can get lost clicking around for hours

**Facebook:**

Basically a front-end to a database; creeper's paradise

**Amazon/eBay/Etsy/etc:**

Amenable to browsing, but consummates in a sale

**Just about everything else:**

Task, search, or feed-oriented, or a bunch of Word docs

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make things. make sense.

where

hypertext

is

my

utopia?



**Extension:** The elements of a set

**Extension:** The elements of a set

**Intension:** The *meaning* that *defines* the set



**Nothing to do with *intent* or *intention***

**Nothing (okay maybe a little) to do with *intentionality***

(though etymology is the same: “action of stretching” vs extension “bulging”)

# LATCH:

Location  
Alphabet  
Time  
Category  
Hierarchy

# LATCH:

Category  
Category  
Category  
Category  
Category

# LATCH:

Extension  
Extension  
Extension  
Extension  
Extension

## **Alphabet:**

“Value starts with the letter  $X$ ”

## **Time:**

“Value occurs within interval  $X$ ”

## **Category:**

“Value of arbitrary semantic relation is  $X$ ”

## **Hierarchy:**

(Just put any category inside any other category)

**Hierarchy:  $A \supset B$  where  $B \subset A$**

**Alphabet:**

“First letter of the value is  $X$  **AND** second letter is  $Y$ ”

**Time:**

“Date part of the value is  $X$  **AND** time part of the value is  $Y$ ”

**Location:**

“Country of the value is  $X$  **AND** administrative subregion is  $Y$  **AND** city is  $Z$  etc.”

**Location:** Geographic coordinates get to be a bit different

2 (occasionally 3) perpendicular dimensions instead of 1

# LATCH:

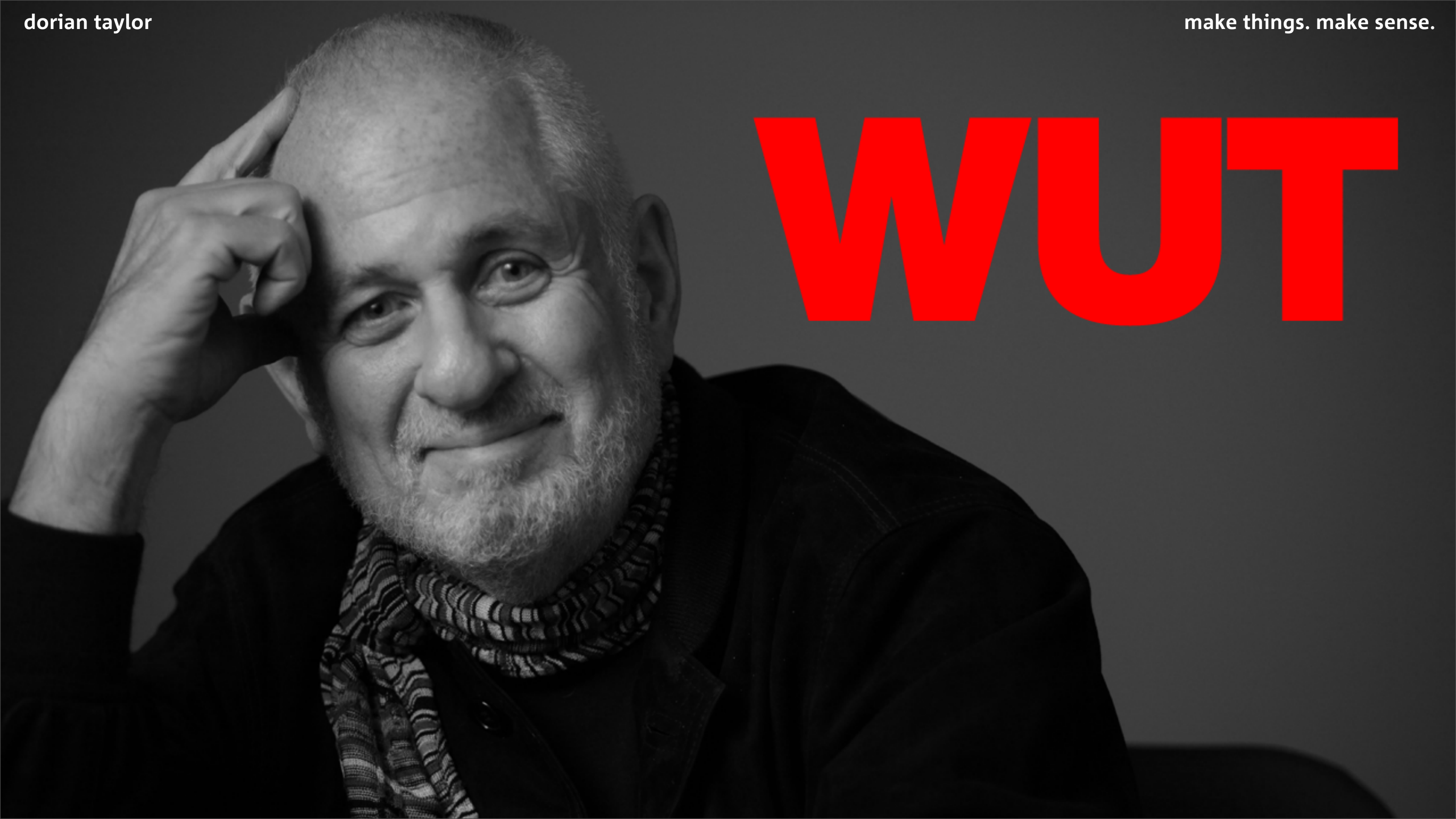
Makes a lot of sense  
for organizing media  
from about 3000 BCE  
to about 1968 CE  
(& lots of stuff still!)



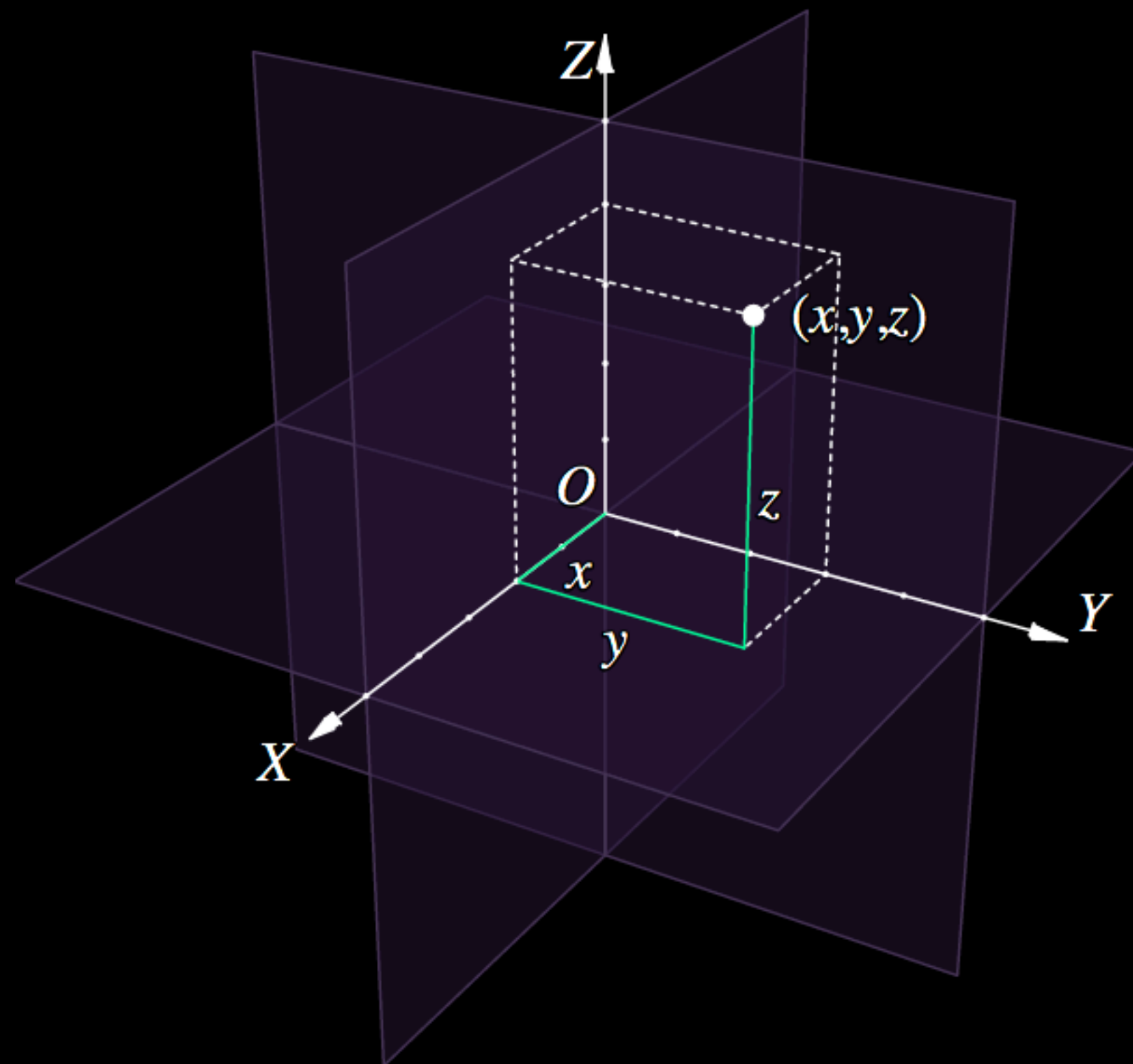
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# WUT

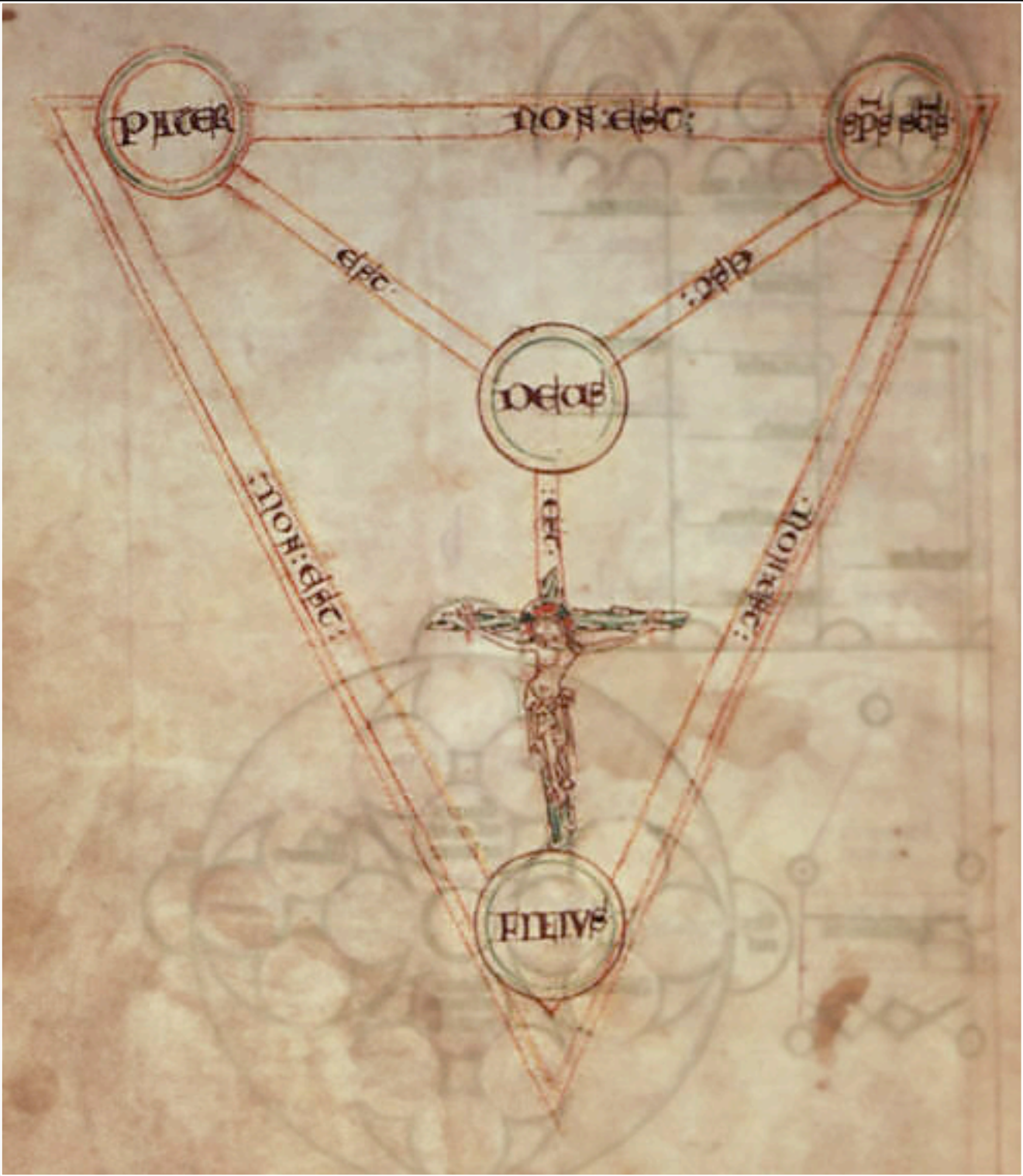


Type	Store	Transport	Operate
Text	Paper, Vellum, Papyrus...	Mail, Courier, Fax, Telegraph...	Pencil, Pen, Eraser, Printing press, Photocopier...
Image	Paper, Canvas, Celluloid...	Mail, Courier...	Ditto, plus camera, projector...
Audio	Disc, Drum, Magnetic tape...	Ditto, plus Wire, Radio...	Phonograph, Tape recorder...
Video	Celluloid, Magnetic tape...		Movie camera + Projector, Video camera + TV + VCR



## 1. Orientability





2. Planarity





### 3. Containment/Mereology

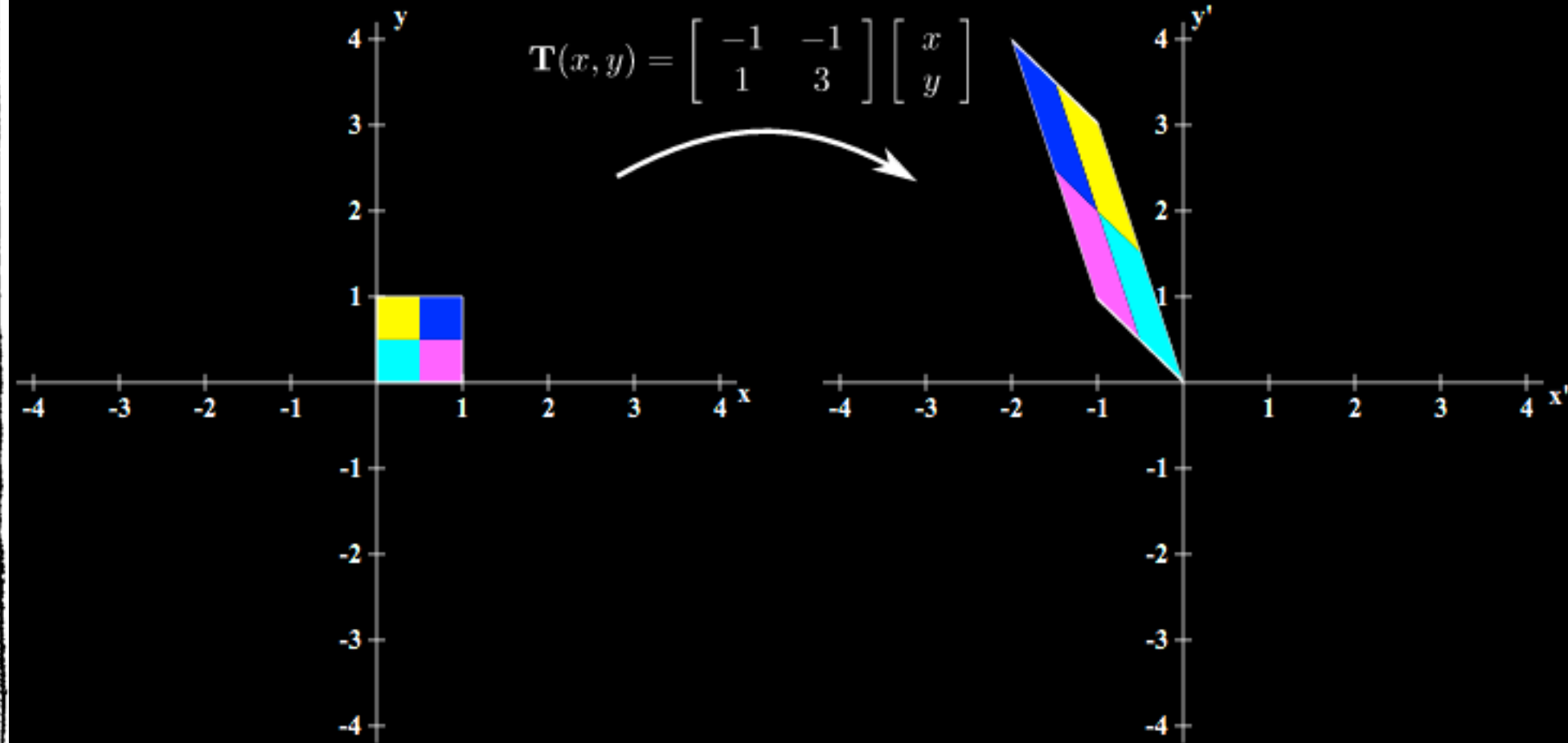
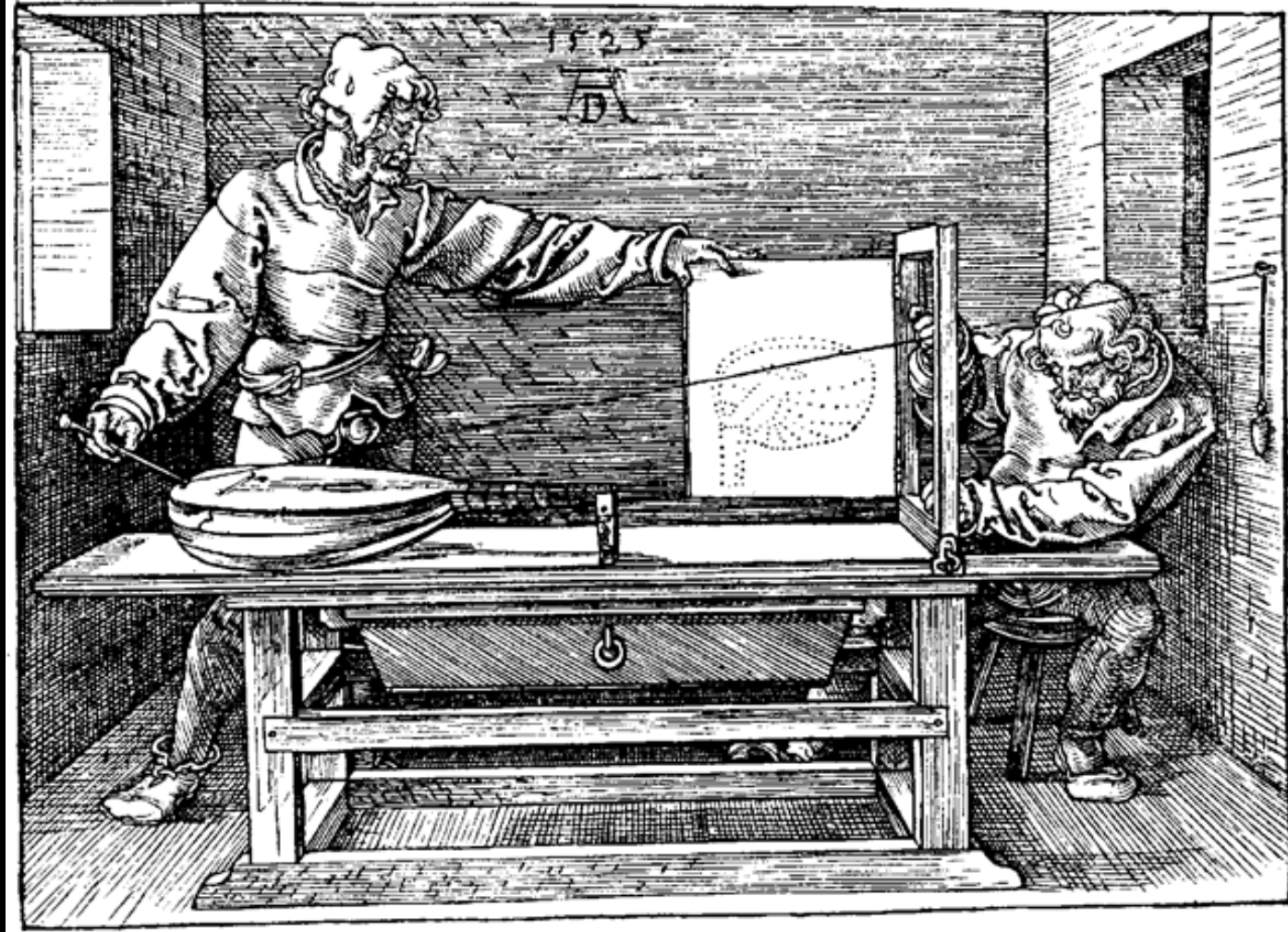






#### 4. Packing/Tiling → Relative Geometry





$$\hat{f}(\xi) = \int_{-\infty}^{\infty} f(x) e^{-2\pi i x \xi} dx$$

5. Invertible (Isomorphic) Transformations → Absolute Geometry

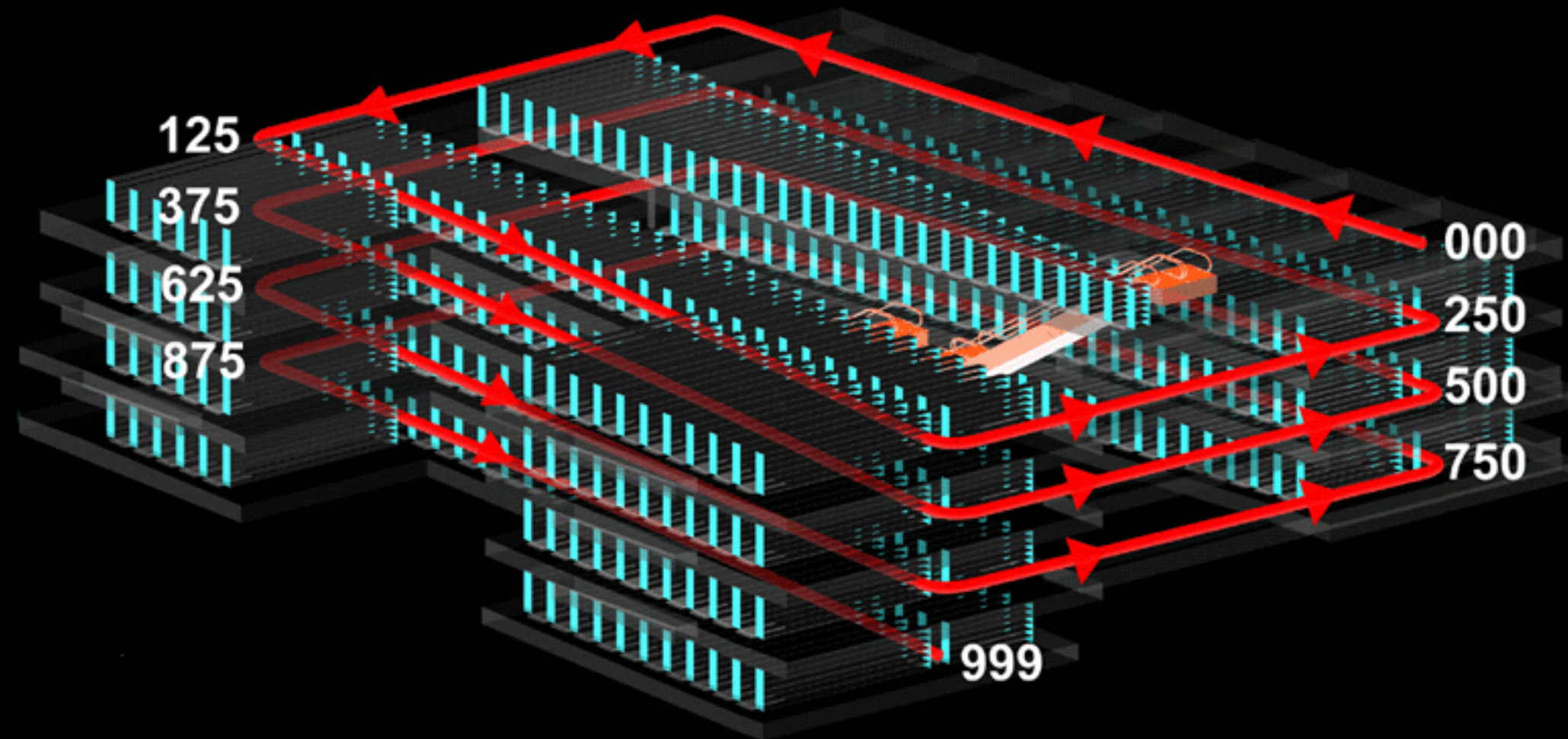
**Page < Document < Book**



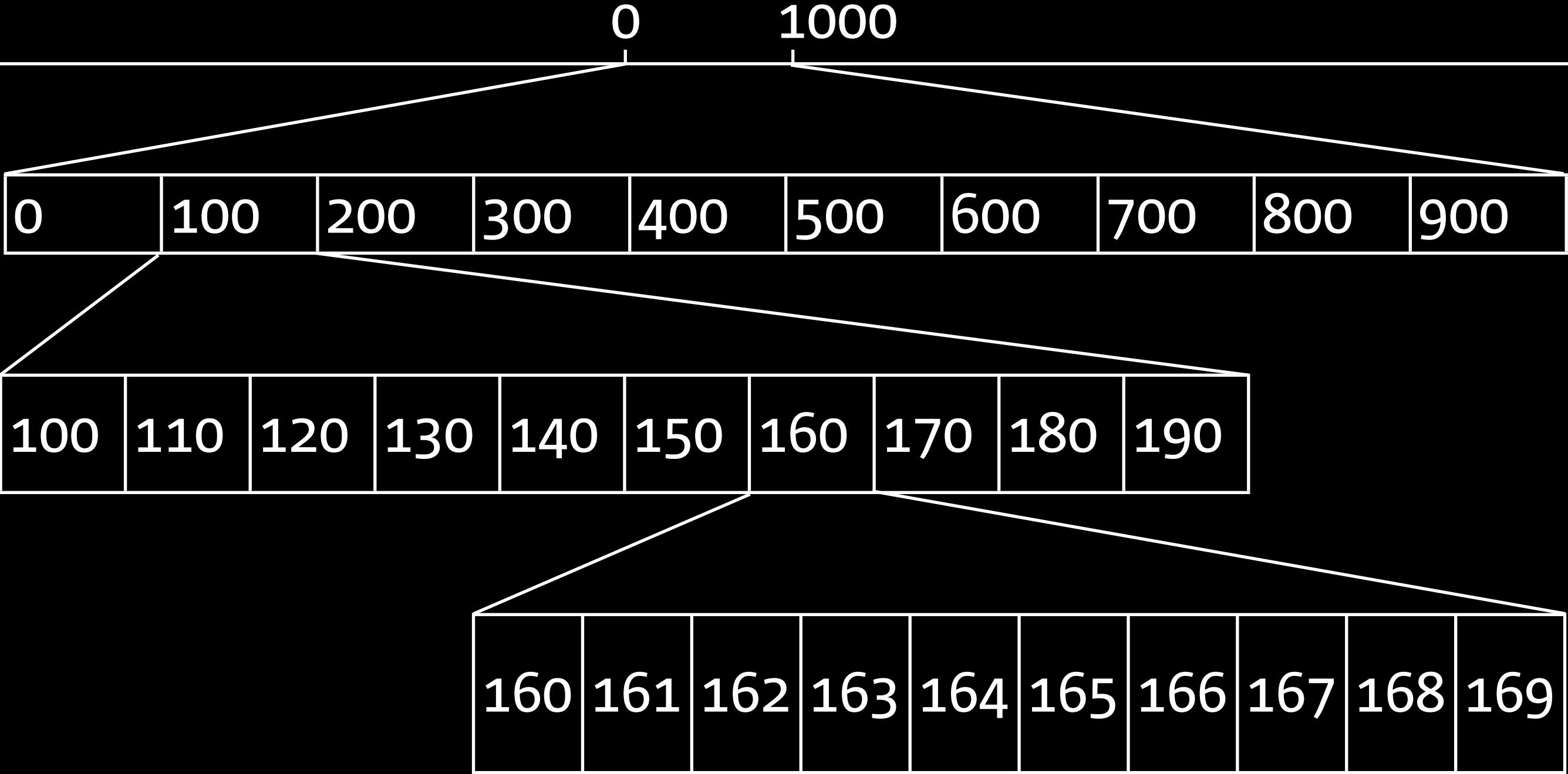
*Sentence* < Page < Document < Book

# Constraints:

- Range in size
- Range in shape
- Range in volume of information
- Range in content of semantic relations
- Range in density of connections within and without



(thank you Seattle Public Library for keeping me from having to draw this from scratch)



...

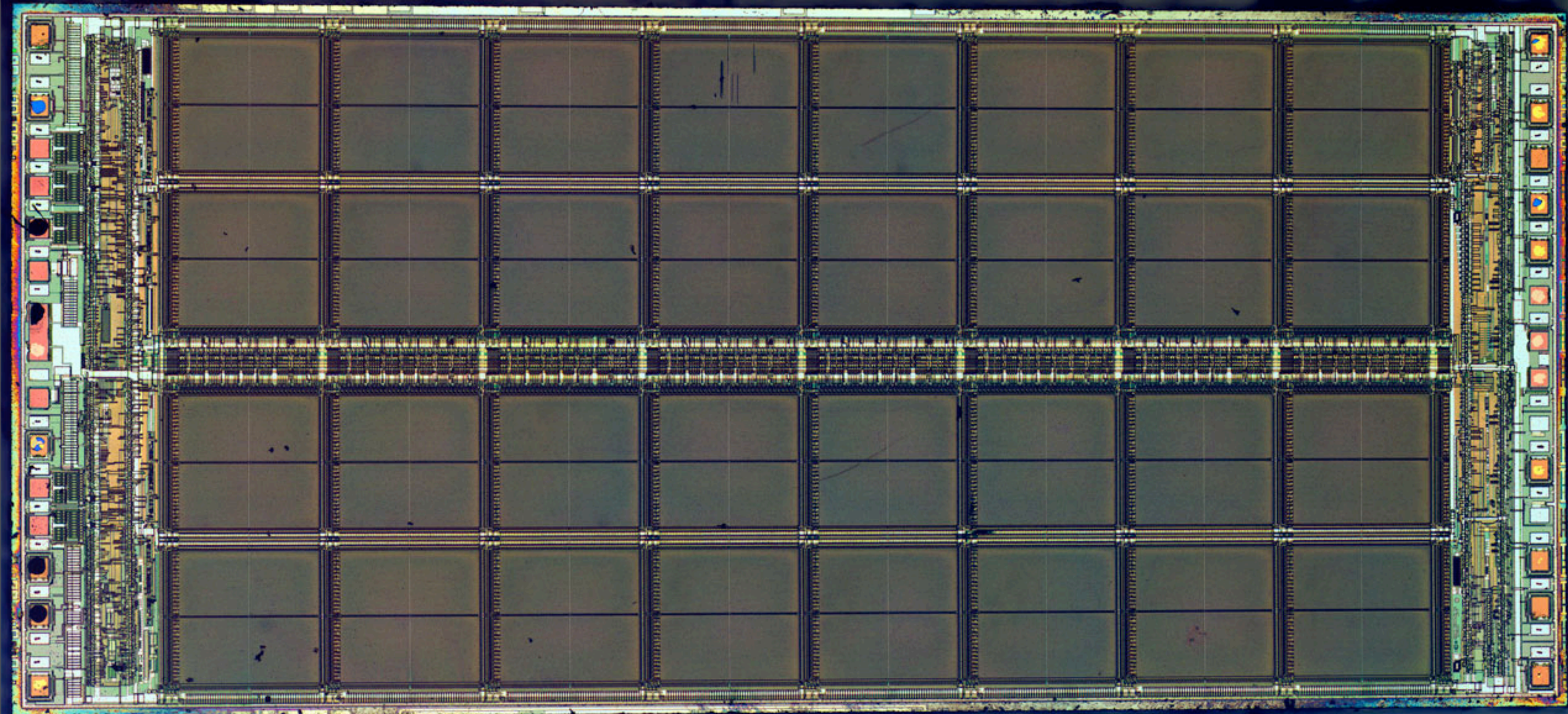


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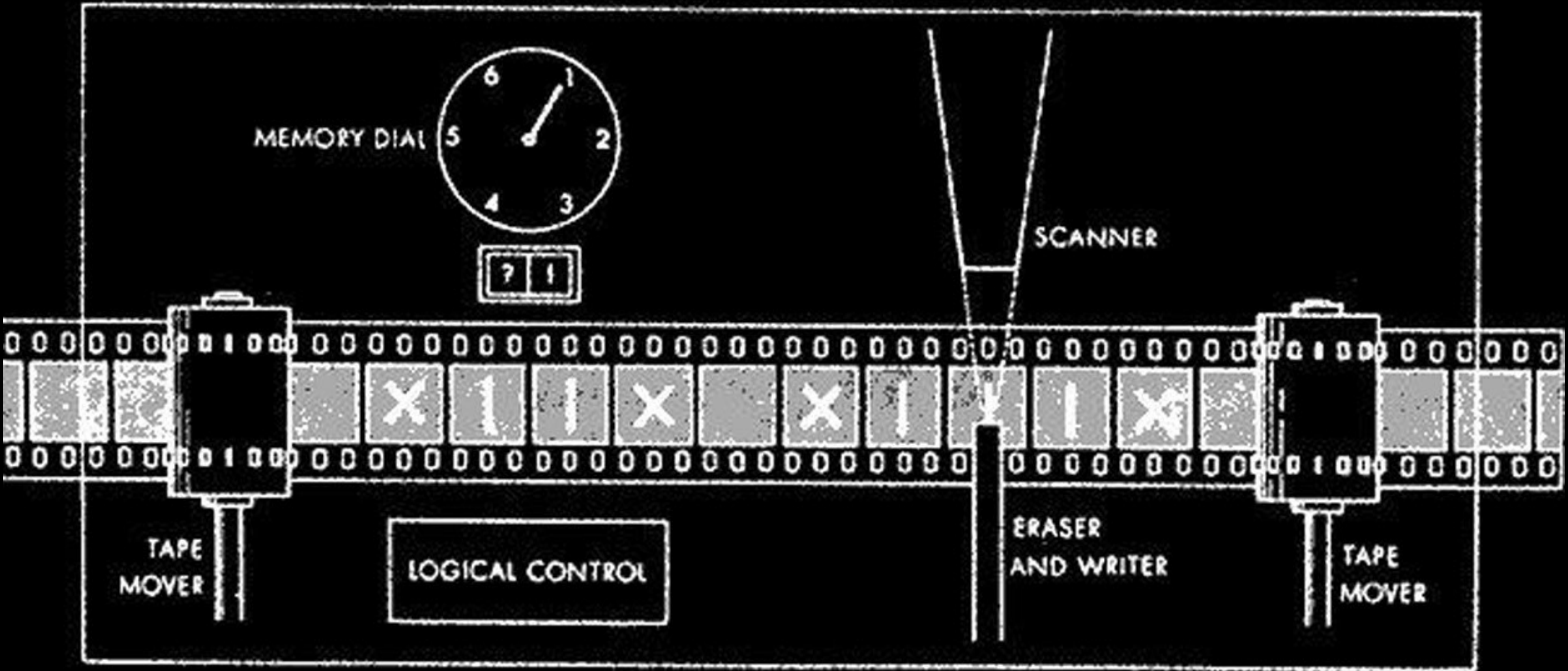
make things. make sense.

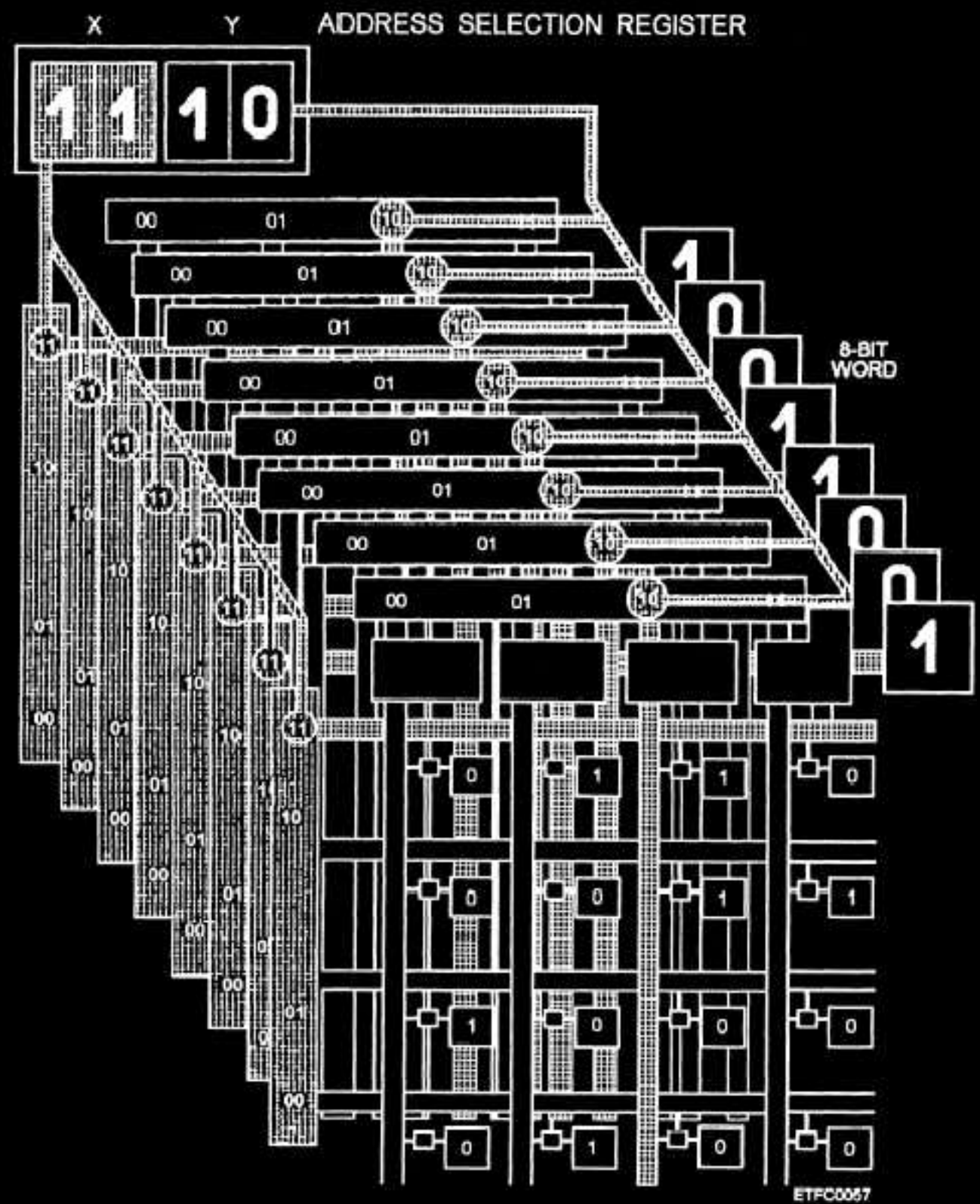




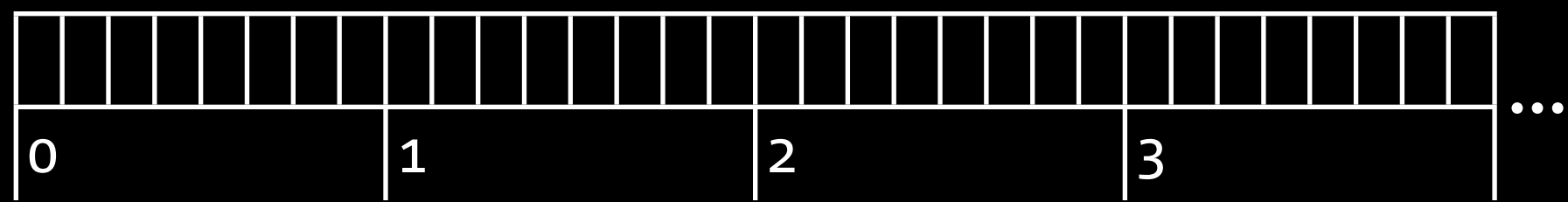








Memory addresses  $\Leftrightarrow$  Turing tape





Unit	Pre-Computer		Post-Computer
Semiotic	Sign (context-sensitive; can be as small as one bit)		
Semantic	Speech act, sentence, clause (ill-defined)		Varies with context; order ~100 bytes
Physical (Addressable)	Page (and page-like)		Byte (Octet)
Logical	Document		Memory region
Economic (Exchangeable)	Packaged document (book, letter, VHS...)		Packaged memory region (file, network message)

Unit	Pre-Computer	Post-Computer
Semiotic	Sign (context-sensitive; can be as small as one bit)	Sign (context-sensitive; can be as small as one bit)
Semantic	Speech act, sentence, clause (ill-defined)	Varies with context; order ~100 bytes
Physical (Addressable)	Page (and page-like)	Byte (Octet)
Logical	Document	Memory region
Economic (Exchangeable)	Packaged document (book, letter, VHS...)	Packaged memory region (file, network message)

Point  $\doteq$  (x, y, z)

Tuple  
(mathematical concept)

Type declaration (in C code)

```
typedef struct {  
    long x;  
    long y;  
    long z;  
} point3d;
```

Memory segment  
(denominated in bytes)

Position ↑

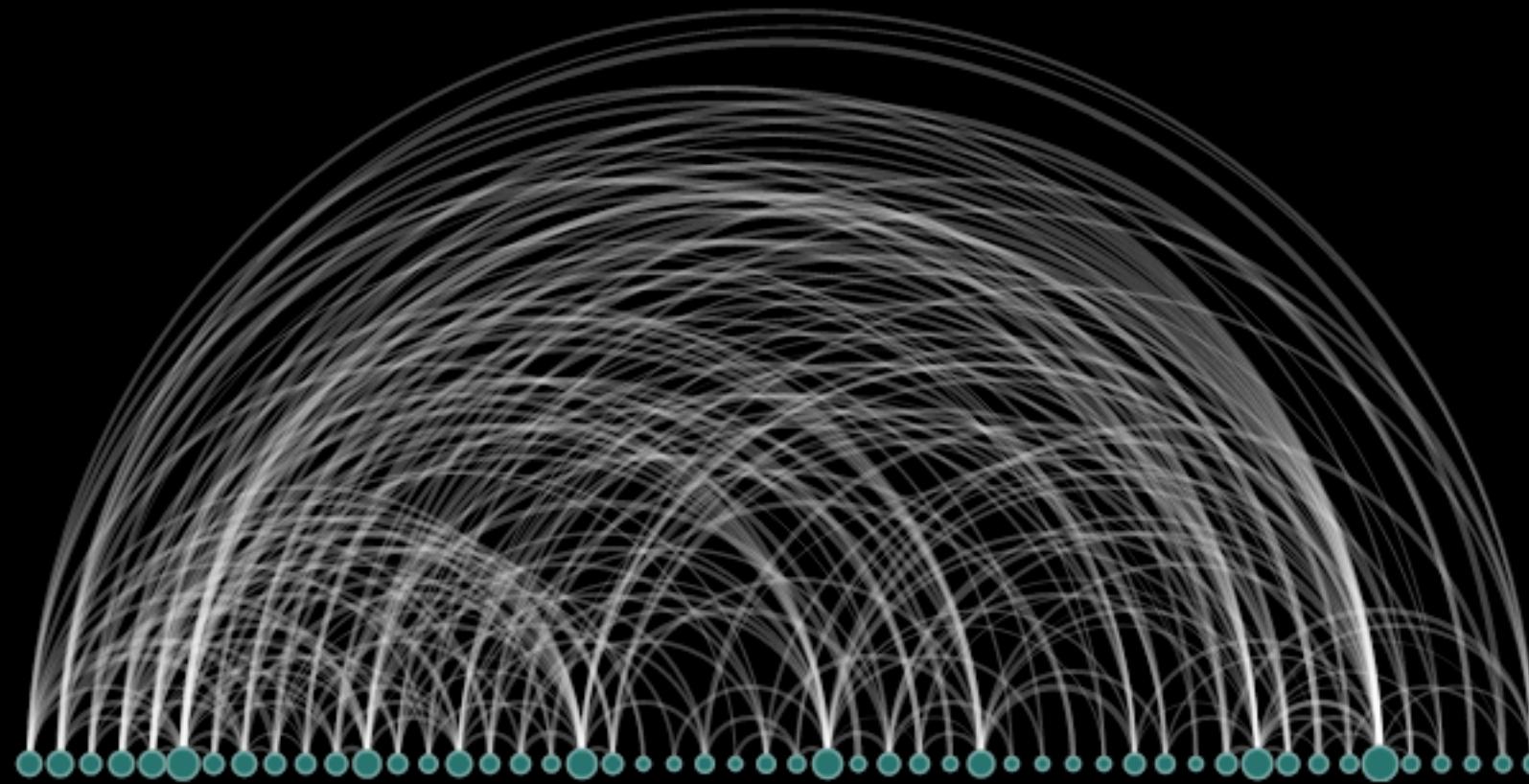
+ sizeof(long)

...



# References Break Planarity

- Indexes (yeah yeah indices)
- Internal cross-references
- Bibliographic citations
- ...



- Memory addresses can (of course) hold other memory addresses
- Intricate structures achieved through systematic dereferencing
- Complexity is amortized over time

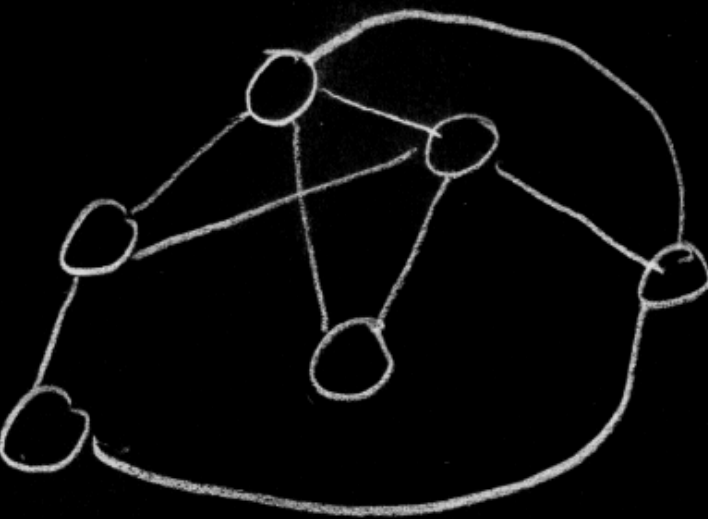
## Remember this one?

- Identify the desired book in the (card!) catalogue
- Locate the stack in the building
- Locate the book in the stack
- Locate the desired term in the index
  - (You may need to try several synonyms)
- Scan each page in the index entry until you find the right one
- Follow a cross-reference
- Flip to a bibliographic citation
- Lather rinse repeat

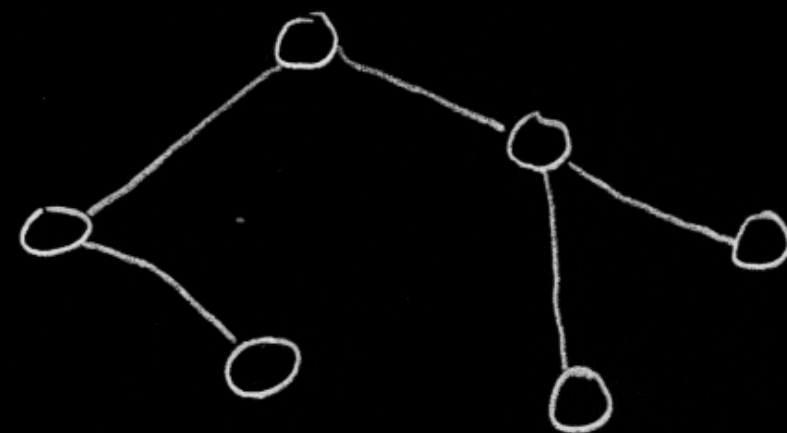
# Information Econophysics

- Big units + expensive dereferencing = few paths
- Small units + cheap dereferencing = many paths

Process/Structure



Syntax Tree



Token Stream



Digital Signal



Analogue Signal



Physical Medium



Physical Medium



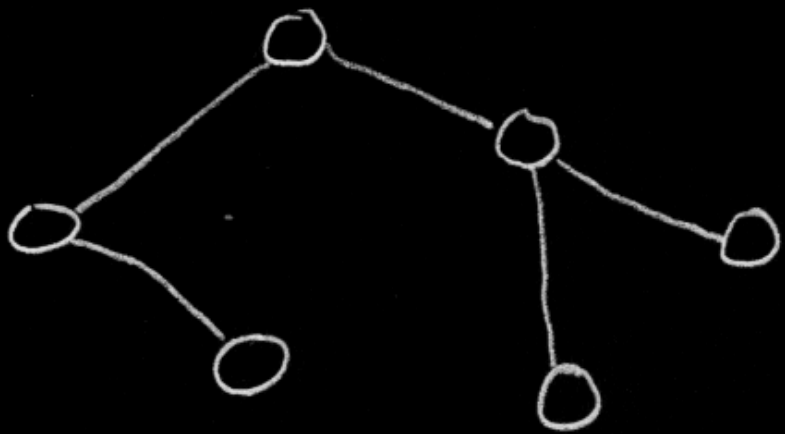
Analogue Signal



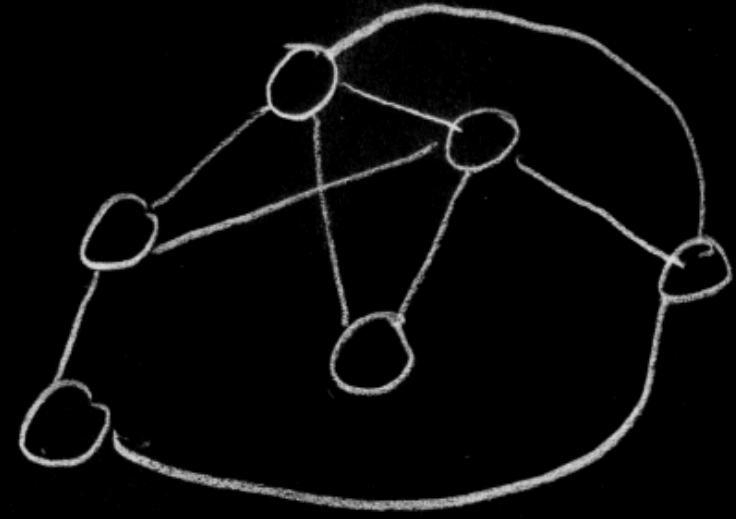
Digital Signal



Token Stream



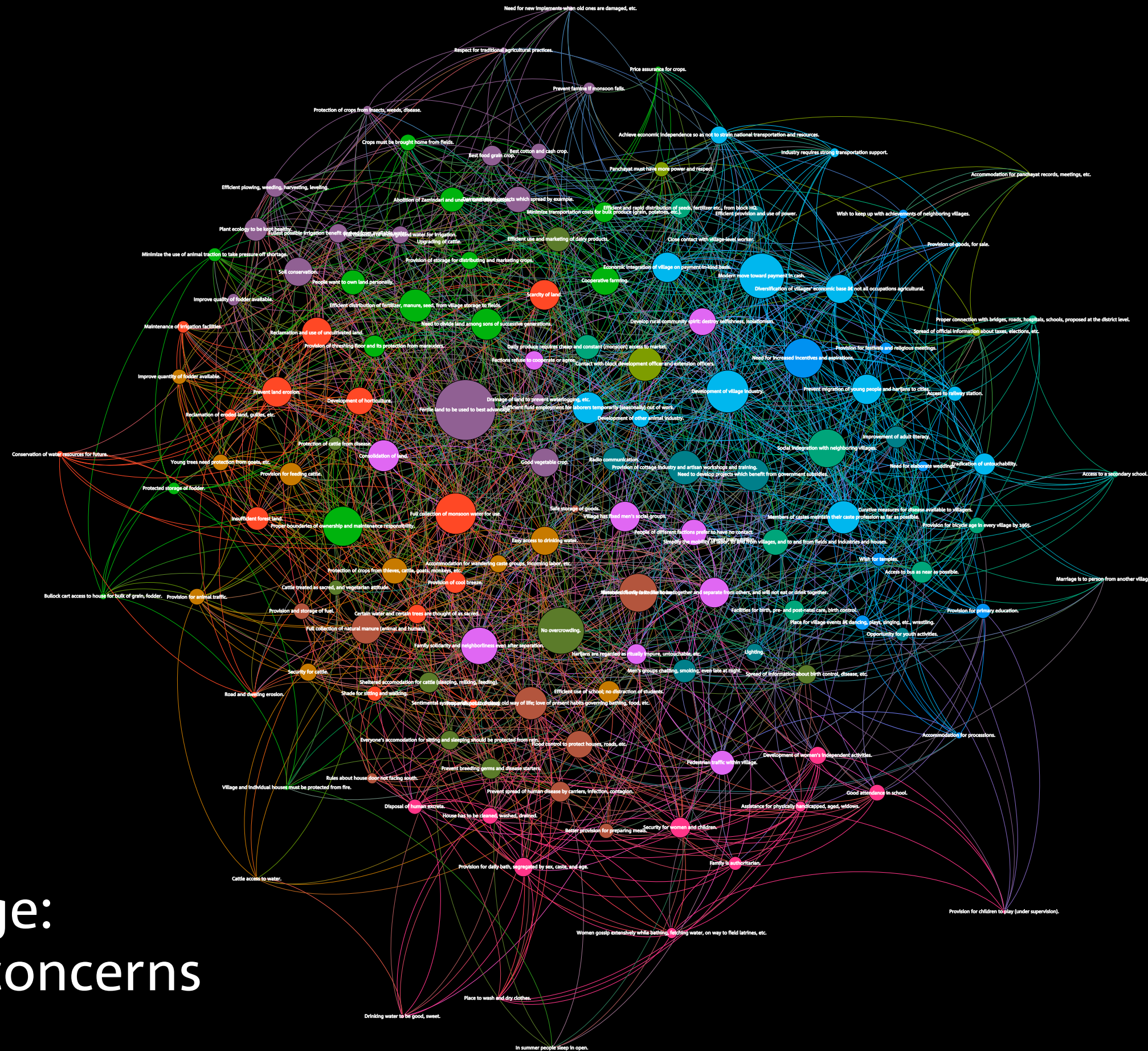
Syntax Tree



Process/Structure

NOTES ON THE  
SYNTHESIS  
OF FORM

CHRISTOPHER ALEXANDER

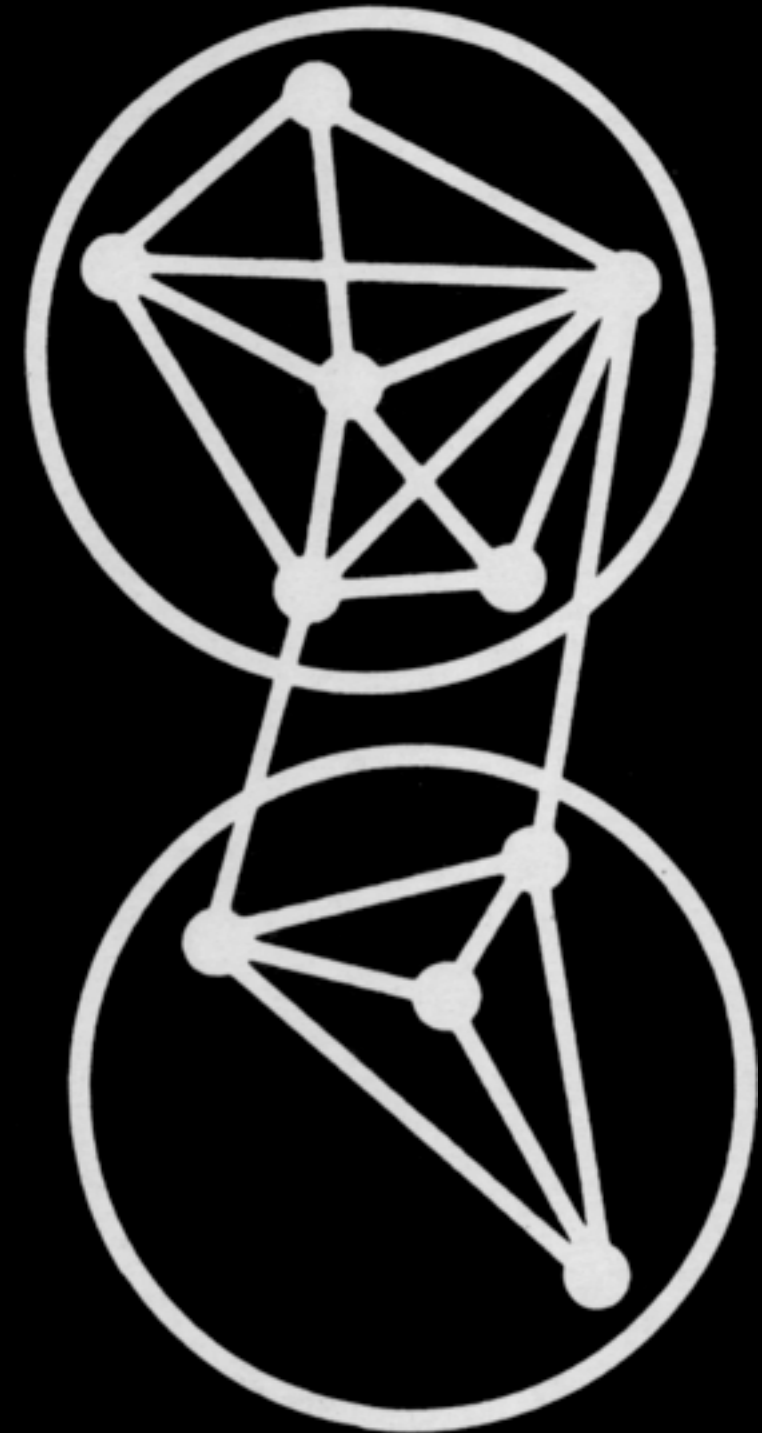
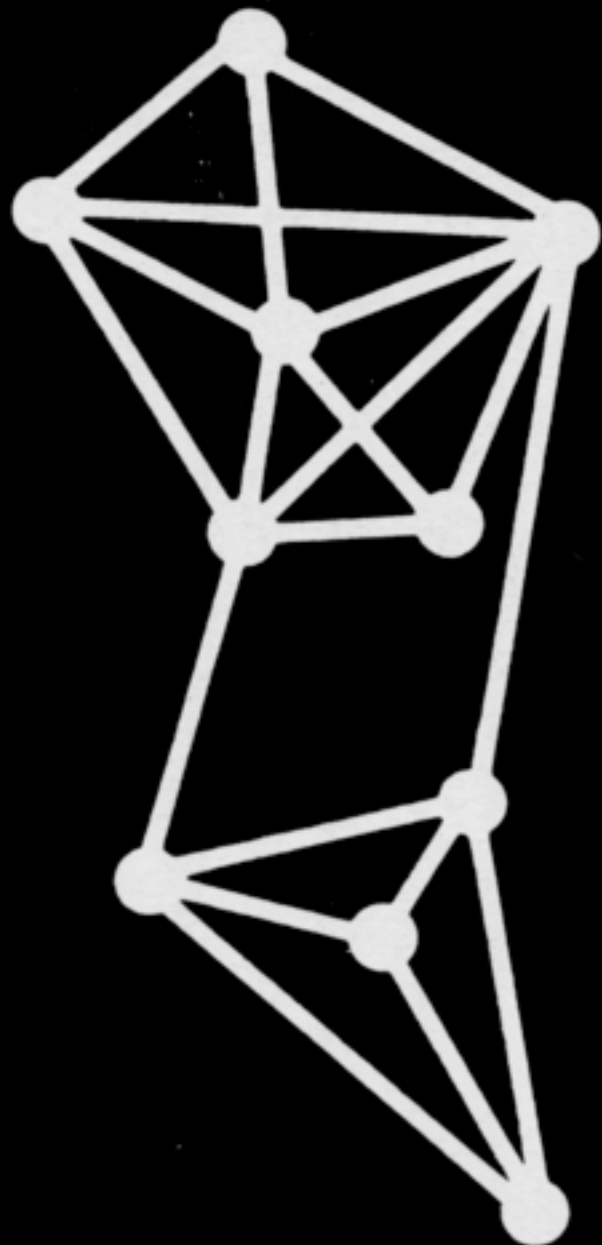


# Indian Village: 141 design concerns



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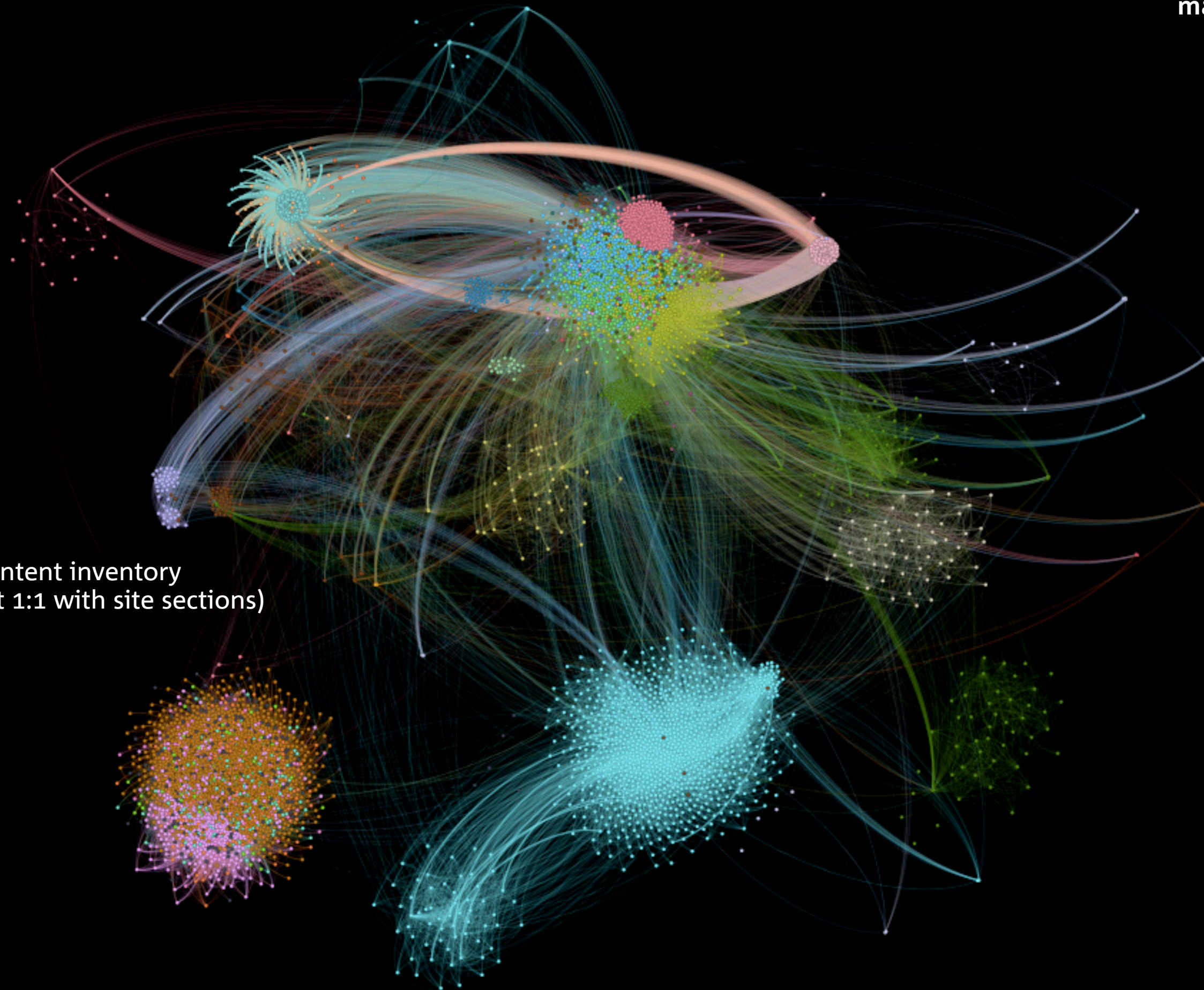
## Kettle thought experiment:

- 21 interrelated design concerns
- $2^{21}$  or 2,097,512 ways to partition
- “Only” ~650,000 words in “core” English
- Only ~30% coverage of possible subsets



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iainstitute.org content inventory  
(clusters surprisingly not 1:1 with site sections)

first last next previous broader narrower

+

abstract accessRights accrualMethod accrualPeriodicity accrualPolicy  
alternative audience available bibliographicCitation conformsTo  
contributor coverage created creator date dateAccepted dateCopyrighted  
dateSubmitted description educationLevel extent format hasFormat  
hasPart hasVersion identifier instructionalMethod isFormatOf isPartOf  
isReferencedBy isReplacedBy isRequiredBy issued isVersionOf language  
license mediator medium modified provenance publisher references  
relation replaces requires rights rightsHolder source spatial subject  
tableOfContents temporal title type valid

still not a heck of a lot

I have found myself needing more than *just* ontologies:

- Use other people's well-researched ontologies
- Invent my own terms and concepts when necessary
- Publish so that the terms and concepts have currency

well then duh linked data/semantic web is an obvious choice



**Let's look over here for a minute →**

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# lunch

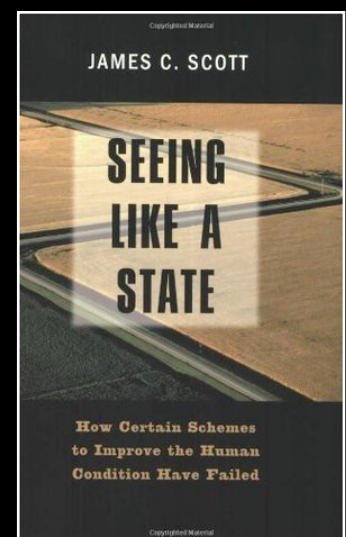
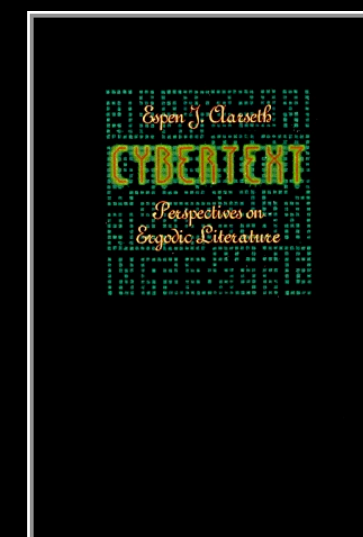
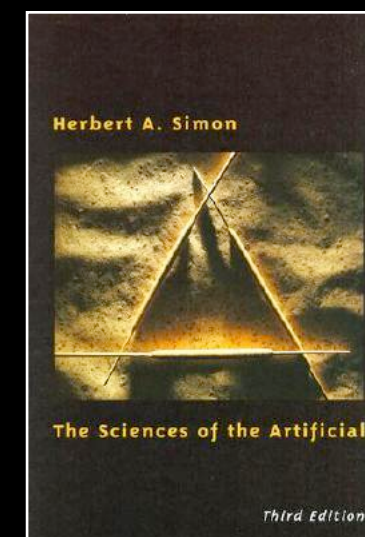
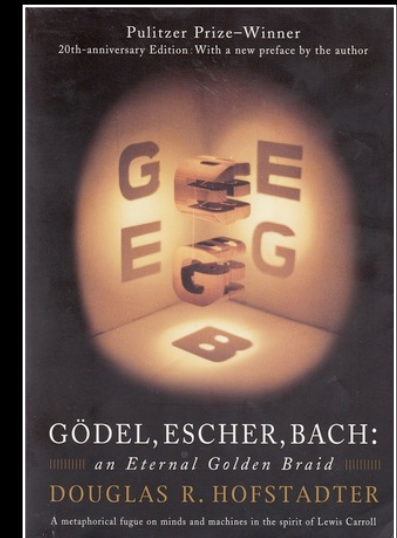
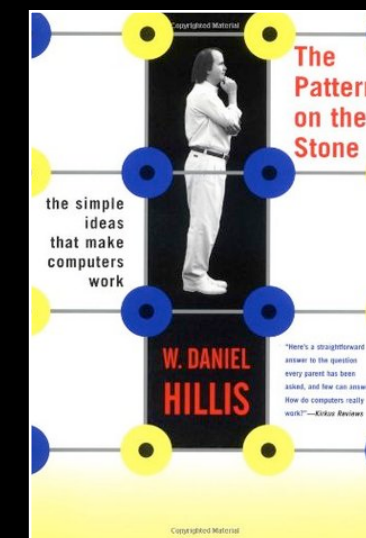
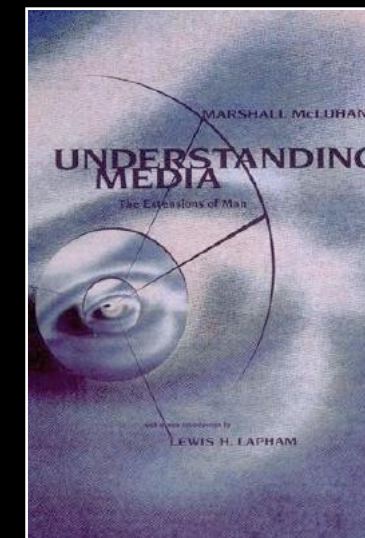
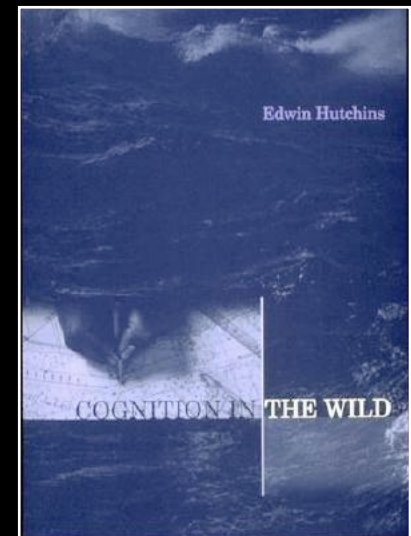
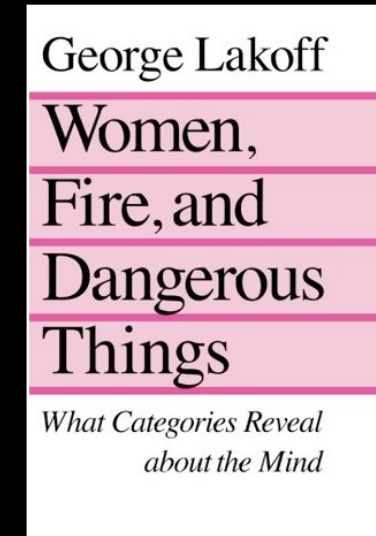
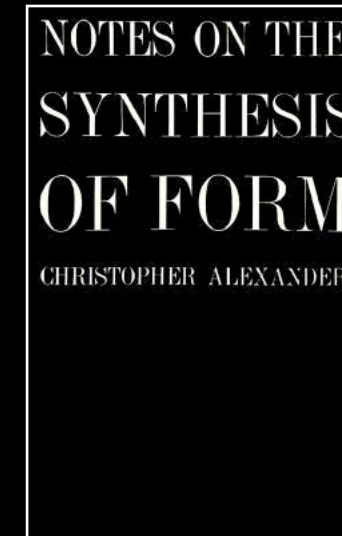
Thank you!

Intentionally *Intensional* Information Architecture

March 24 2017

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