Welsh Mathematician walks in Cyberspace

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vfridge and aQtive

http://www.hiraeth.com/alan

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understanding space

real space

model

14

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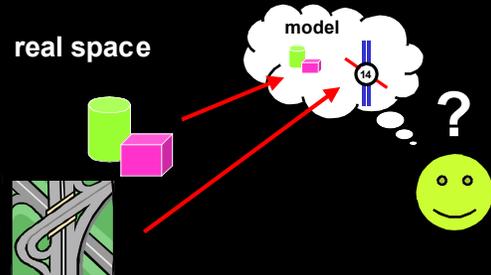
understanding cyberspace

CYBERSPACE

model

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Lober giny a ghin tyu mjfhi g ta not jkrt uyos

Lober giny a ghin tyu mjfhi g ta **not** jkrt uyos

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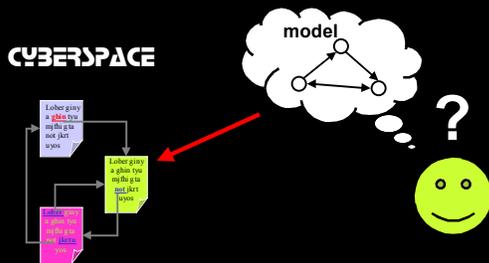
maps

mazes

sources

myth & magic

mathematics

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cognition

community

sources

computation

constructed environment

Clay tablet map

2200 BC

Yorghan Tepe, Iraq

Egyptian garden

1400 BC

garden of a high court official of Amenhotep III at Thebes

Wales

John Speed
1610
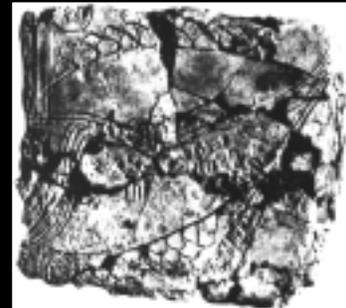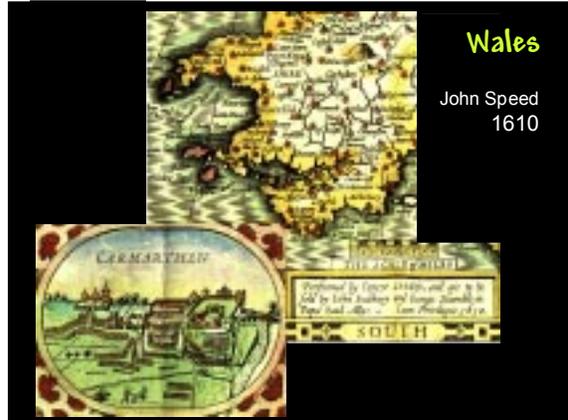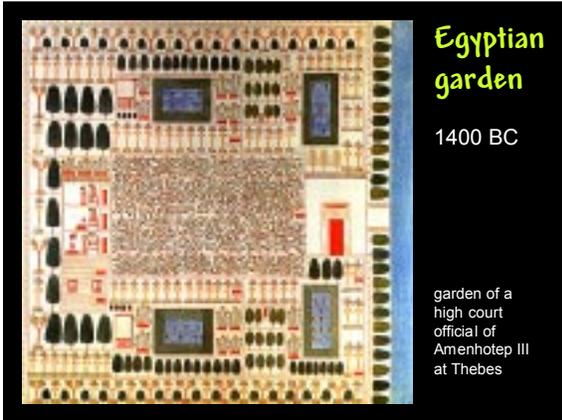
drawings

cartographic (isomorphic)

cartographic (homomorphic)

schematic

linear

episodic

journeys

always linear

Kendal

Manchester Airport

Newark

San Francisco

labrynth
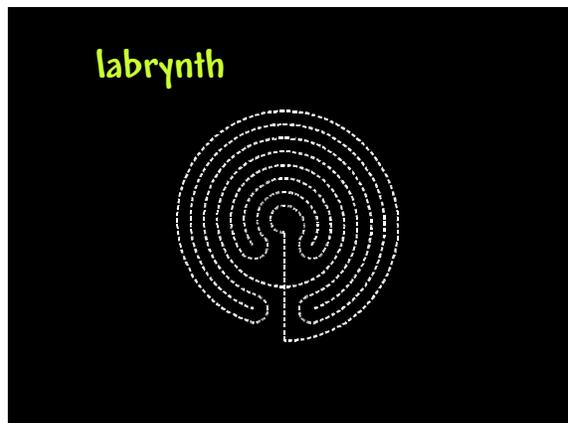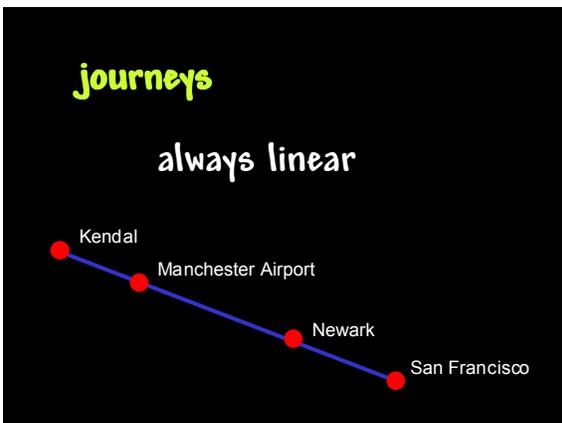
2D/3D

Euclid

Pythagorus
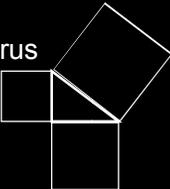
Descartes
x, y, z
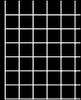
but is it real
and is it natural

## seeing in 3D

which is closer?
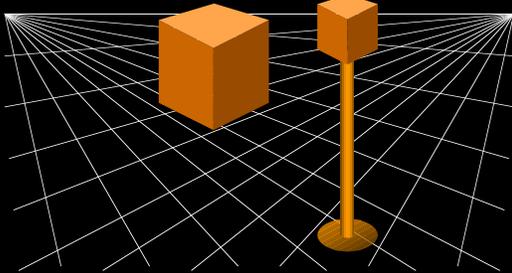
real is easy

which is closer?
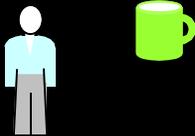
2D navigation

walking vs. helicopter

Poincare property

tunnels and flyovers

manipulate in 3D

see in $2\frac{1}{2}$ D

navigate in 2D

properties of space

closeness and connectedness
fixed orientation/centre
flat
infinite
objective

closeness

metric spaces

b

c

a
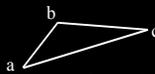
$D(a,c) \leq D(a,b)+D(b,c)$

topology

neighbourhoods
open and closed sets
limits

awareness models

nimbus, focus, etc.   Benford et al.

connectedness

graph theory

arcs and points
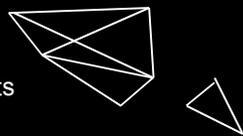
awareness

reformulated!   Rodden

architecture

Hillier
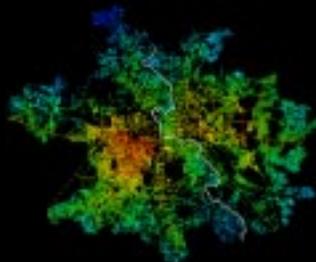
space is the machine
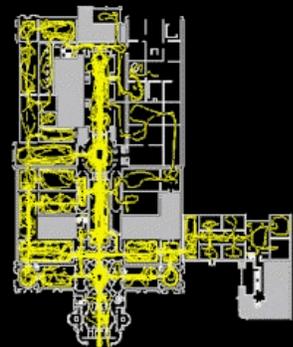
symmetry

directed
graphs
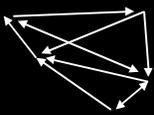
one-way streets

hyperlinks

symmetry

fixed centre
fixed orientation

T-O map of the world

Isidore of Seville
560-636 AD

Pietro Vesconte's World Maps, 1321,
from Marino Sanudo's *Liber secretorum fidelium crusis*

http://www.henry%2ddavis.com/MAPS/LMwebpages/LM1.html

mappa mundi

Hereford Cathederal
1300 AD

View of the World from 9th Avenue

Saul Steinberg
1975

Piaget

could you see B from A

A   B

Donaldson

can Ann see Bob

Ann   Bob
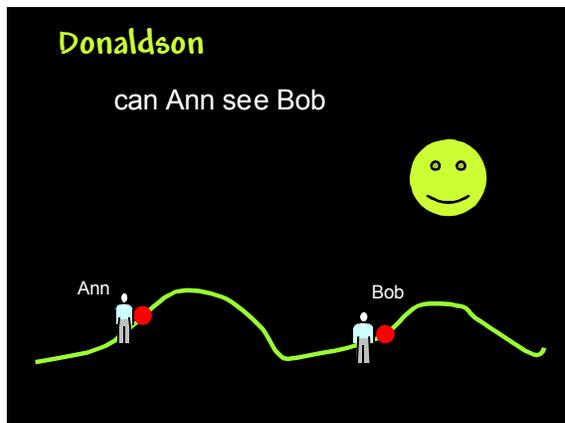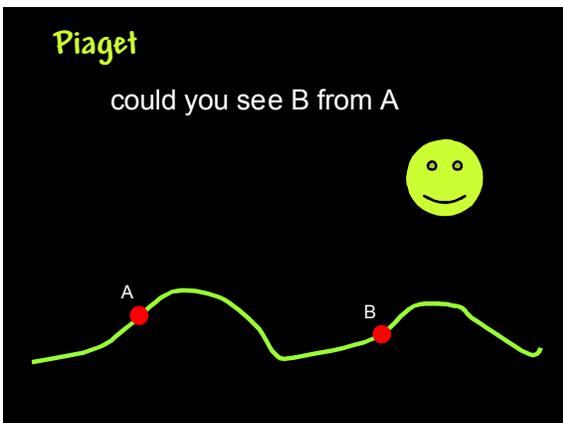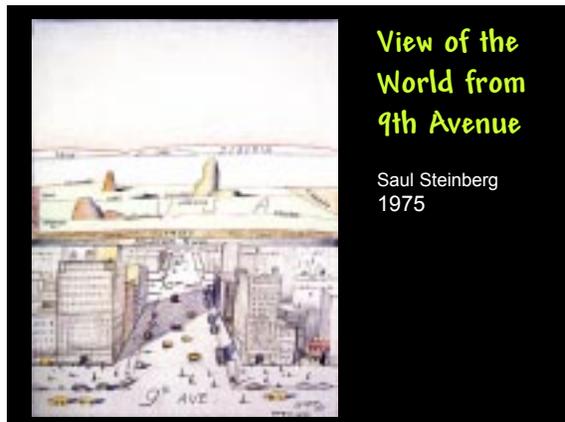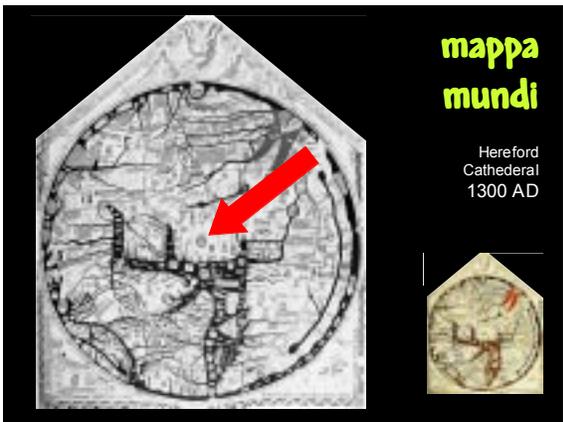
viewpoints

Bali - left/right/east/west
Polynesia - what moves
CVE ...

**infinite space ...
finite, or cyclic**

When we've been here ten thousand years,
Bright shining as the sun,
We've no less days to sing thy praise
than when we first begun.

Amazing grace
John Newton (1725-1807)

The day thou gavest, Lord, is ended,
The darkness falls at they behest;
To thee our morning hymns ascended,
Thy praise shall sanctify our rest.

The day thou gavest, Lord, is ended
John Ellerton (1829-93)

We thank thee that thy church unsleeping,
While earth rolls onwards into light,
Through all the world her watch is keeping,
And rests not now by day or night.

The day thou gavest, Lord, is ended
John Ellerton (1829-93)

As o'er each continent and island
The dawn leads on, another day,
The voice of prayer is never silent,
Nor dies the strain of praise away.

The day thou gavest, Lord, is ended
John Ellerton (1829-93)

flat space
bent space
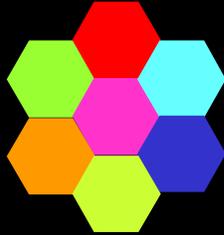
Temple of Bel-Shamharoth, Discworld

"The floor was a continuous mosaic of eight sided tiles."

Terry Pratchett, The colour of magic

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hyperbolic browser (inxight)

data mapped in hyperbolic space

hyperbolic space projected into 2D

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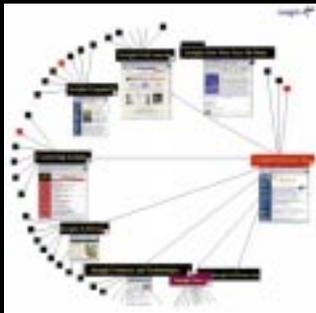
stiching together

general relativity
- curved space time
- differential geometry
- locally euclidean patches
- smoothly joined

? cyberspace
- local vs. global ...

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shapes of community

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vfridge

collaboratively
building
structure
in
space

close collaboration
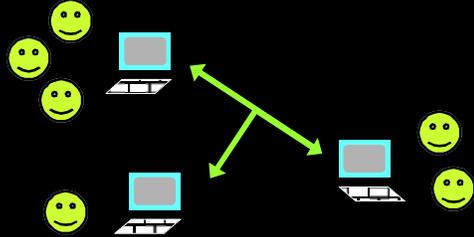
parallel reality

portals and gateways

coexistent worlds
mabinogion
ubiquitous computing

in conclusion

there's more to space
than three dimensions