

# Emergent Structure

Some fundamental lock upon which hierarchies  
can be built

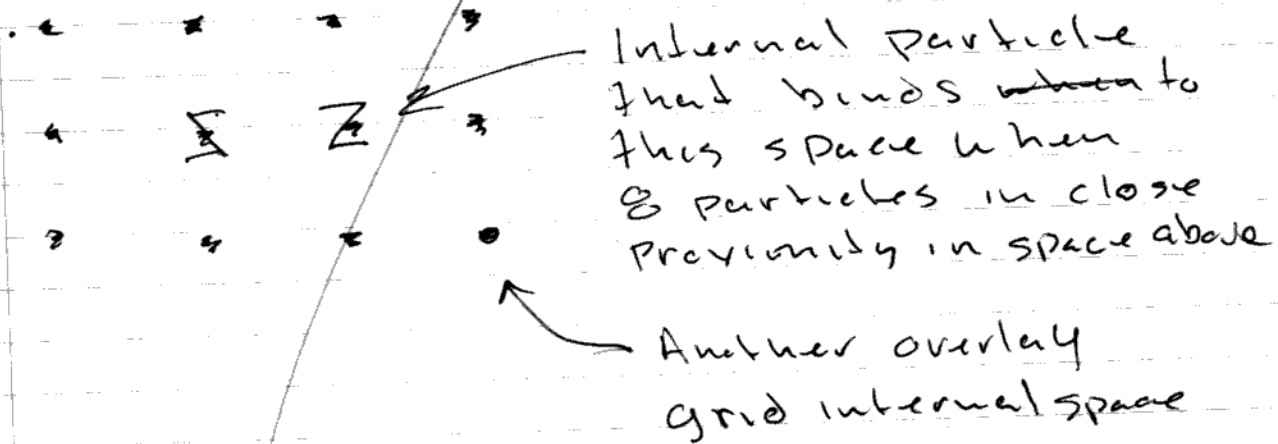
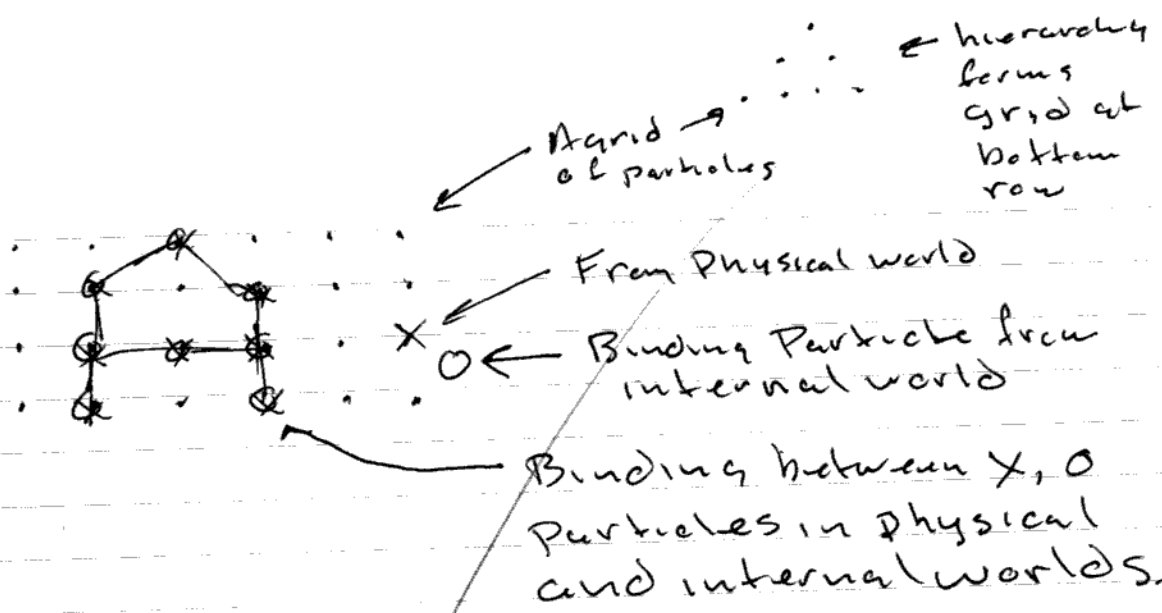
Some nature that allows looking at higher  
level

This seems to be some locality of  
scope

Again the idea of rules and some combinator  
that satisfies these rules

But what are the rules??

→ notion of replicating DNA like mech  
that induces order



## Rules

~~O can bind to~~

O can bind to . when X present at .

Z can bind to E when 8 O present at

Pent in space  
balance proteins /

1 grouping more favorable than another grouping.

Must add energy to one grouping to break apart or get to another grouping.

Another way of grouping is to say <sup>representing</sup> some object must be present ~~for~~ for objects to exist in the state then so

- Q1) what is present
- Q2) implies sub objects

Another way to say is an object is a stable collection of sub objects.

Stable in the sense there is some sort of balance between objects of a specific type for example

this brings in the idea of local minima.

in a multidimensional equation.

There is some stable grouping of elements at a local minimum.

Change the number of elements and you can exit the local minimum.

Again this implies grouping and locality.

How do you track a relationship between a subset of objects?

One way is to tag objects with an id.

Back to Quantum effects

Hierarchical Classifier

Symbols

Hierarchical implies  
locality?

threshold, trigger, something unique  
emergent search trial/error

Compression

minimal ~~data~~ + transform algorithms = Bigger  
info

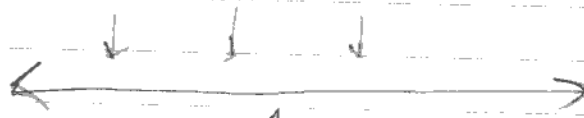
Quantum

Defining condition that produces order

Structure

Axis

Position  
dependent



Projection

transform

minimum data

Constituent Parts

Q) How to produce a rich structure with maximum amount of local minima?

i.e. maximum amount of ability to instantiate object or store state



What is a system that is conducive  
to hierarchical structure? what characteristics?

- Varied components
- right %s
- right coupling

There is kind of a search function.

A kind of evolutionary unwinding.

that happens at multiple levels

Similar to quantum environment

where object can be at multiple positions  
or states

Then something happens that forces  
a specific state.

What is a state anyway

How does that relate to coupling.

The dog is/wh in its house

heads or tails showing on the coin

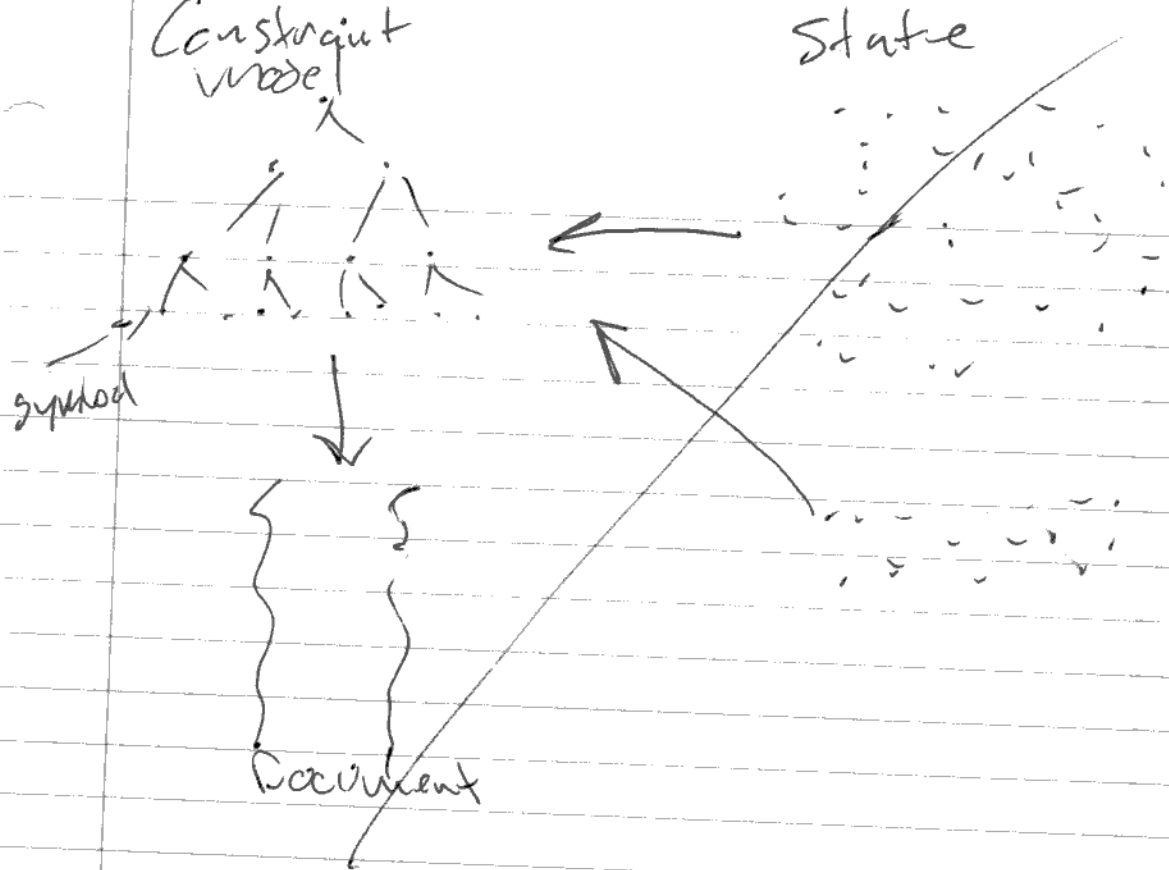
Hydrogen and Oxygen combine to form water

water + electricity = Hydrogen + oxygen

~~How to represent combinations of things  
that~~  
!

# Quantum Physics

- Many Possible Paths coexist simultaneously
- Possibly  $\infty$  Paths
- Each Path has a probability
- States / Events can eliminate Paths
- When observed you have eliminated to a single path



Like Quantum Physics

~~This document can have many possible forms~~

# Emergent Structure

Build vs Determine

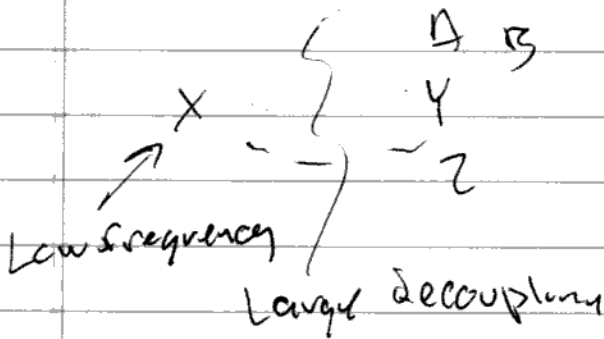
everything tightly constrained  
Sequential  
more information

Quantum sense

many things possible  
Some variable leaks  
in system ~~by~~

Can be chain reaction like  
only one thing fits

Structure results when improbable  
events determine system



Lock

Some event  
Some state

Determines  
Subsystem

Strong  
Decoupling

Link Between  
Lock and  
System state  
Selection

