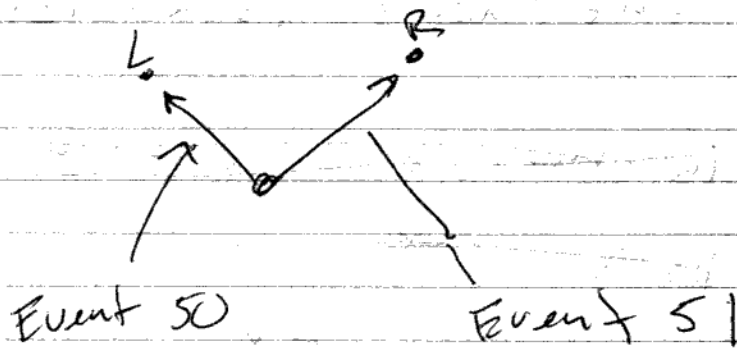


Q) is random just the chaotic flow of a highly complex unstable system?

Ex)



Decision to go left is triggered when event 50 occurs

Right when 51 occurs

50, 51 result from chaotic flows in other dimensions but occur ~~with~~ at equal frequency

Appearance of randomness occurs when rather small subset of simple subsystems interact.

at some level of system
knowledge Left and Right
~~could~~ could be ~~predicted~~
predicted

But without knowledge of the
sub domains, for example only
knowledge of L/R domain
the choice is effectively Random

~~In other words random is just~~

~~Random = *~~

$$X \text{ is random if } \frac{\# X_i}{\# \text{ observations of domains}} = \frac{1}{n}$$

$$n = \# \text{ different } X_i \text{ in } X$$

The key is the domains we sample
against determines our ability
to predict.

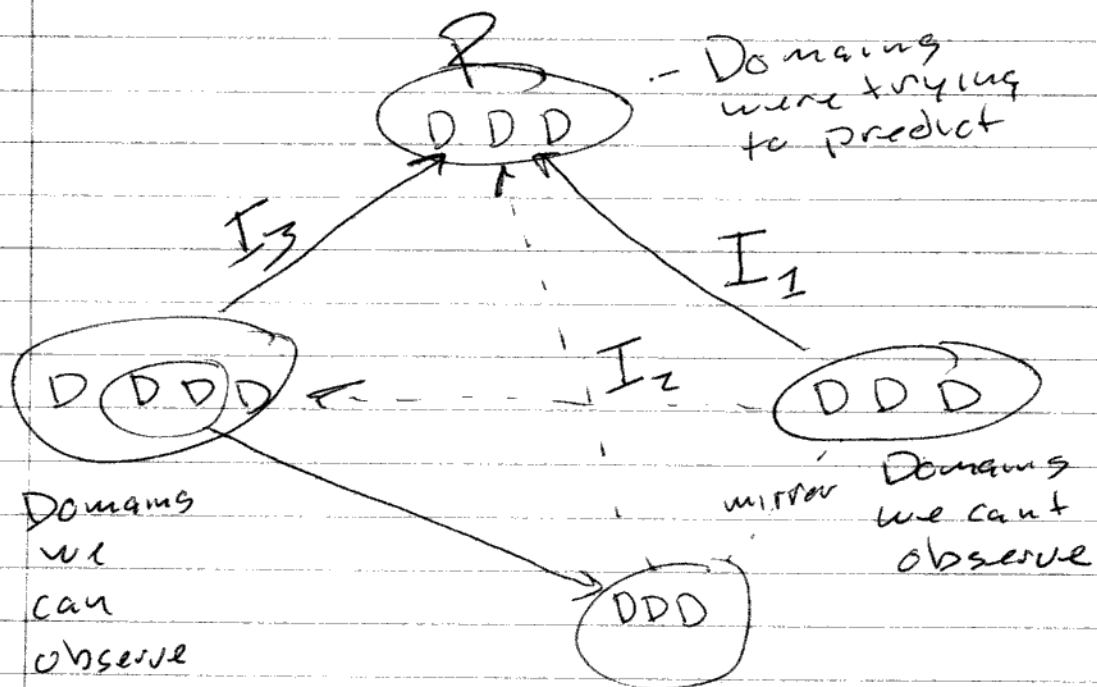
Sample against unrelated domains
and outcome is random

Sample against some related domains
and outcome is partially random

Sample against all related domains
and outcome is fully predicted

Therefore randomness occurs
when relevant domains can't
be accessed or processed.

Relationship of Learning and randomness



Predictability of P

$$= \frac{\text{ratio of impact } I_1}{\text{impact } I_2 + \text{impact } I_3}$$

Hidden Domains we can synthesise from what we observe