

# Two ways of thinking

Prof Stephen Sterling  
Centre for Sustainable Futures  
Plymouth University, UK



# Systems thinking involves a shift of attention...

## *FROM....*

- Parts
- Things
- Static states
- Linear cause-effect
- Control mechanisms

## *TOWARDS...*

- Wholes
- Process and relation
- Dynamics
- Multiple influences and feedback
- Self-organisation and emergence



# One-sided competence

## WE ARE GOOD AT:

- *analysing* things
- *categorising* and *labeling* things (this is a 'health issue' 'an economic issue', a 'social issue' or an 'environmental issue', for example)
- *seeing detail* and dealing with parts
- *focusing in* on one factor or one goal (e.g. maximising a particular achievement), and on the short term

= ***reductionist approaches***



## WE ARE MUCH LESS GOOD AT:

- thinking '*out of the box*' and synthesis
- seeing *relationships* that exist in reality beyond our labels
- appreciating *overall patterns* in events, in organisations, or other phenomena.
- recognising and balancing *multiple factors, feedbacks* and goals
- and thinking long term

= ***holistic approaches***



# 10 assumptions of box thinking (i)

- 1 'To every problem, there's a solution'
- 2 'We can understand something by breaking it down into its component parts'
- 3 'The whole (of something) is no more than the sum of its parts'
- 4 'Most processes are linear'
- 5 'Most issues and events are fundamentally separate or may be regarded as such, and may be dealt with adequately in a segregated way'



# 10 assumptions of box thinking (ii)

6 'It is acceptable to draw your circle of attention or concern quite tightly, as in "that's not my concern'

7 'We can define or value something by distinguishing it from what it is not, or from its opposite'

8 'Objectivity is both possible and necessary to understand issues'

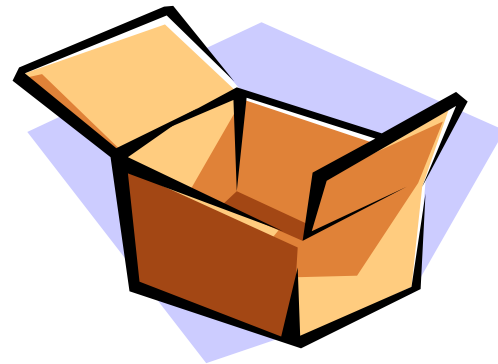
9 'We can understand things best through a rational response. Any other approach is irrational'

10 'If we know what the state of something is now, we can usually predict future outcomes'



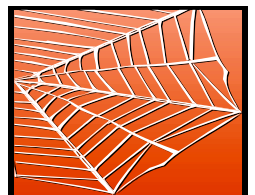
# 10 assumptions of box-thinking restated

- problem-solving
- analysis
- reductionism
- cause-effect
- atomism
- narrow boundaries
- objectivism
- dualism
- rationalism
- determinism



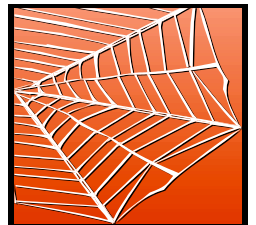
# 10 assumptions of linking thinking (i)

- 1 As some 'solutions' just produce more *problems*, we need to develop 'solutions that generate further solutions'.
- 2 We often need to look at the whole, and at the larger context.
- 3 Complex systems show *emergent properties*; i.e. qualities that emerge from the interaction of the parts e.g. health in a human body.
- 4 We need to attempt to look at multiple causes, 'knock-on' effects, and feedback loops involved in change.
- 5 Most issues/events can only be understood *in relation* to other issues/events or contexts.



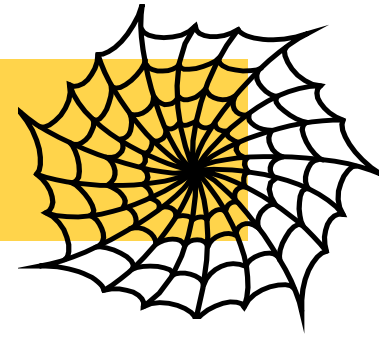
# 10 assumptions of linking thinking (ii)

- 6 Complexity means that we need to expand our view of the world and be more aware of our boundaries of concern.
- 7 We need to see so-called 'opposites' in relationship rather than in opposition eg. ecology and economy, people and nature, facts and values.
- 8 Total objectivity is impossible. Better to recognise how our subjective self is involved in perception and interpretation of the world.
- 9 Intellect needs to be balanced with intuition, and rationality with non-rational ways of knowing.
- 10 In most human and most natural systems it is impossible to predict outcomes. We need to be more flexible, accept uncertainty, and not try to control everything but participate in and learn from change.





# Two ways of thinking...



Reductionist

Systemic

- **Problem-solving**
- **Analysis**
- **Reductionism**
- **Closed cause-effect**
- **Atomism/segregative**
- **Narrow boundaries**
- **Objectivism**
- **Dualism**
- **Rationalism**
- **Determinism**

- **Reframing/alleviation**
- **Synthesis**
- **Holism**
- **Multiple influences through time and space**
- **Integrative**
- **Extension of boundaries**
- **Critical subjectivity**
- **Pluralism / duality**
- **Rational / non-rational ways of knowing**
- **Uncertainty, tolerance of ambiguity**

