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## Holism and Human History

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# Holism and Human History

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(Jump to category: Systems Theory and Philosophy)

# Cosmos, Nature, Culture A Transdisciplinary Conference

Metanexus Conference  
July 18 – 21, 2009  
Phoenix, Arizona



# Abstract

## 1. A story of 'culture'

1.1 The challenge of universal history

1.2 Systems theories as a resource

## 2. A systems process model

2.1 Hierarchical levels of complexity

2.2 Complexification as process

## 3. Application to universal history

3.1 A three process model

3.2 A view of the past

3.3 A view of the present

## 4. Summary

## Abstract (1/3)

This paper uses a **systems-theoretic model** to structure an account of human **history**. According to the model, a process, after its beginning & early development, often reaches a **critical stage** where it encounters some limitation. If the limitation is overcome, development does not face a comparable challenge until a **second critical juncture** is reached, where **obstacles** to further advance are more **severe**. At the **first** juncture, continued development requires some **complexity-managing innovation**; at the **second**, it needs some event of **systemic integration** in which the old organizing principle of the process is replaced by a new principle. Overcoming the first blockage sometimes occurs via a **secondary** process that augments & blends with the primary process, & is subject in turn to its **own** developmental **difficulties**.

## Abstract (2/3)

Applied to history the model joins together the **materialism** of Marx with the **cultural** emphasis of Toynbee & Jaspers. It describes human history as a **triad of developmental processes** which encounter **points of difficulty**. The 'primary' process began with the emergence of the human **species**, continued with the development of **agriculture**, & reached its first **critical juncture** after the rise of the great **urban civilizations**. **Crises** of disorder & complexity faced by these civilizations were **eased** by the religions & philosophies that emerged in the **Axial** period. These Axial traditions became the **cultural cores** of major world civilizations, their development constituting a '**secondary**' **process** that merged with & enriched the first.

## Abstract (3/3)

This secondary process also eventually stalled, but in the West, the impasse was overcome by a 'tertiary' process: the emergence of humanism, secularism & quintessentially the development of science & technology. This third process blended with the first two in societal & religious change that ushered in 'modernity.' Today, while intercivilizational tension afflicts the secondary process, the greatest challenge confronting humanity are difficulties engendered by the third process of development, coincident with the primary process having reached its second & most critically hazardous juncture: the current global climate-environmental-ecological crisis. System Integration via a new organizing principle is needed on a planetary scale.

- 1. A story of 'culture' (human history)**
  - 1.1 The challenge of universal history**
  - 1.2 Systems theories as a resource**
2. A systems process model
3. Application to universal history
4. Summary

# 1.1 The challenge of universal history

- The story of culture (as opposed to cosmos & nature) is a story of **history**, but **historians** are **reluctant** to tell such a story. They note a distinction between ‘**nomothetic**’ – lawful – & ‘**ideographic**’ – unique & contingent, & argue that **history** belongs to the **latter**. Macro-histories, e.g., of **Hegel, Marx, Spengler, Toynbee**, have **not** been **highly regarded** by most historians.
- But there is **no escape** from macro theories of history & meta narratives. If we **don't** have an **explicit historical model**, however flawed, we **default** to our **private mental models** that are flawed even more severely. If one insists on the irreducibly unique character of historical events, this in effect implies a particular historical theory, namely one in which events are random.
- **Even singular events** can be investigated scientifically. A theory of history need **not** imply that history is **deterministic** or that **random** or **unique** occurrences don't play an **important** role.

## 1.2 Systems theories as a resource

- This paper offers a **holistic account of human history** that draws on systems ideas. These ideas are used in sociology, anthropology, economics, & political science, & **von Bertalanffy**, one of the founders of the systems field, believed the systems field could also offer **history** new concepts, mathematical formalisms, & modeling methodologies.
- The paper is based on previous work of author: a model of **hierarchical order** applied to **molecular biology & linguistics** & a **catastrophe-theoretic** interpretation of **Hegelian-Marxian dialectics**.
- This work draws on ideas from **graph theory**, **nonlinear dynamics** (chaos & catastrophe theories), **information theory**, **non-equilibrium thermodynamics**, etc.; also on ‘**systematics**,’ a philosophical framework (Bennett) of number & graph symbolism. Though based on mathematical ideas, the model is **not derived deductively**. It is **conceptual** more than mathematical, & is **heuristic & speculative**.
- The model offers **structures more complex** than **lineal** or **cyclic** patterns typically explicit or implicit in historical explanation.

1. A story of culture

## 2. A systems process model

### 2.1 Hierarchical levels of complexity

*Main ideas of the model*

*Figure 1. Complexity of structure*

*Example*

### 2.2 Complexification as process

*Figure 2. Complexification as process*

*Figure 3. A secondary augmenting process*

*Sources of difficulty for development*

3. Application to universal history

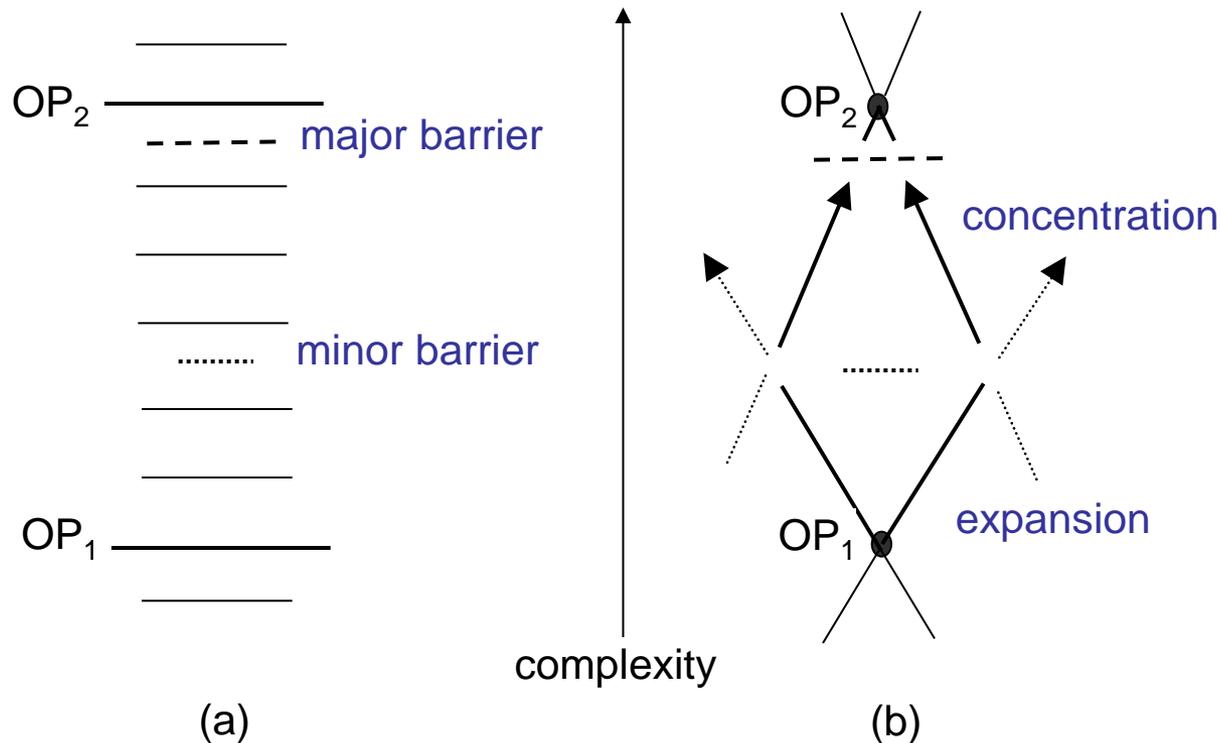
4. Summary

# Main ideas of the model

- A process is governed by some ‘organizing principle’ (OP).
- The OP crystallizes (concentrates) in a system formation event.
- The process develops (expands) in stages (potential → actual).
- Development is partially determined & partially random.
- It is shaped by internal factors & subject to external influences.
- It is especially hindered at two points of difficulty (‘barriers’).
- An early minor barrier limits spontaneous increase of complexity.
- A final major barrier blocks transformation to a more complex OP.
- Multiple blending processes mitigate or exacerbate difficulties.

# Figure 1. Complexity of structure

- (a) Levels of complexity; system formation events  $\Leftrightarrow$  ordinary levels
- (b) Complexification as expansion & concentration. Minor barrier divides  $OP_1$  domain in two.



# Example

Not all levels are 'equal'.

**OP<sub>3</sub>**

**multi-cellular organism**

tissues, organs, organ systems

above minor barrier, developmental specification

**OP<sub>2</sub>**

**cell**

small & large molecules & molecular aggregates

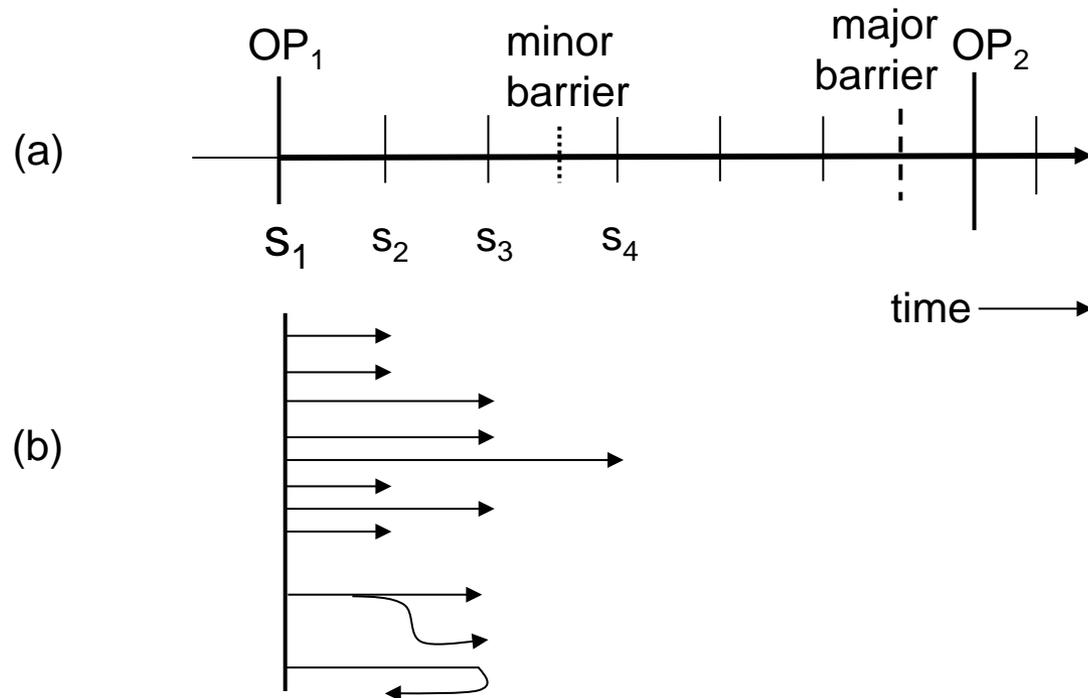
above minor barrier, genomic specification

**OP<sub>1</sub>**

**atom**

## Figure 2. Complexification as process

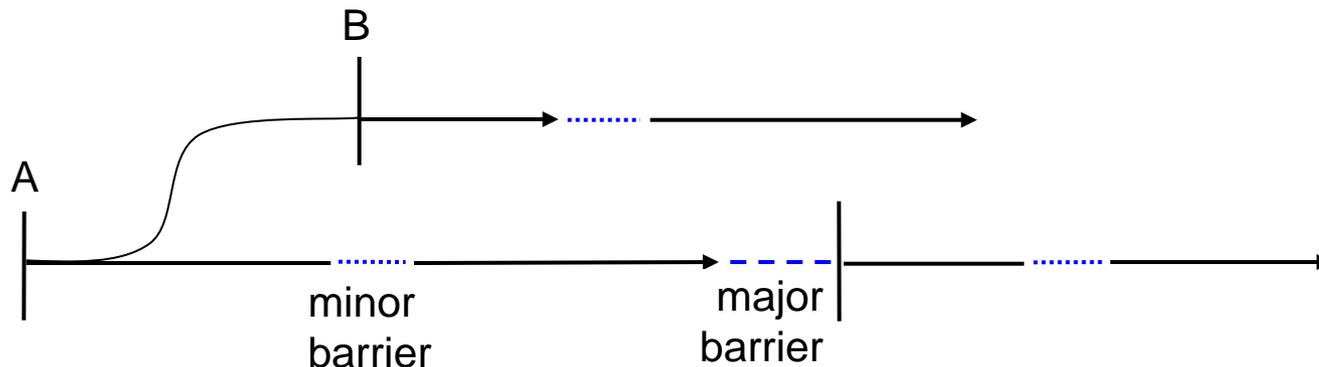
- (a) Levels here become **stages**  $s_2$ ,  $s_3$ , etc., reached over time.
- (b) **Minor barrier** makes complexification difficult: **multiple processes** (with same OP) may reach **different stages** or the same stage **at different times**. Processes can **branch** or **reverse**, are partially determined & partially random (contingent).



## Figure 3. A **secondary** augmenting process

Simplified representation **omits stages**, shows **system formation events** with organizing principles A & B; major & minor barriers are *horizontal*.

Secondary process, B, **differentiates** from primary one, A, & can help primary process through minor barrier.



## *Multiple sources of difficulty* for development

- (a) Contingencies of *transitions from stage to stage*
- (b) *Barriers* that pose special difficulties for *particular* transitions
- (c) *Tensions of differentiation & integration of multiple* processes

1. A story of culture

2. A systems process model

### **3. Application to universal history**

#### **3.1 A three process model**

*Figure 4. Periodization; three processes*

*Figure 5. Macro-historical 3-process model*

*Figure 6. Parsons' tetrad of a social system*

*Figure 7. Two triads of processes*

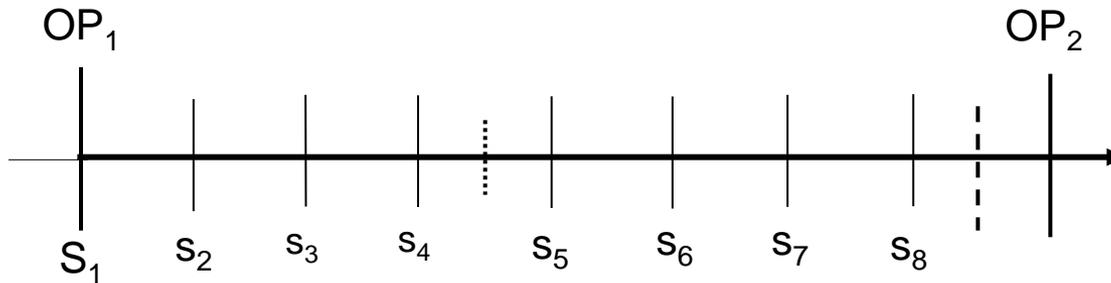
3.2 A view of the past

3.3 A view of the present

4. Summary

# Figure 4a. Periodization

Stages of world history (Stearns). Time scales are more logarithmic than linear: earlier stages much longer than later ones.



*Stage definitions are approximate, partially arbitrary, provisional.*

s8 Contemporary	ca 1914 – today
s7 Long 19th Century	ca 1750 – 1914
s6 Early Modern	ca 1450 – 1750
s5 Post-Classical	ca 500 – 1450 CE
s4 Classical period	ca 1000 BCE – 500 CE
s3 Early civilizations	ca 3500 BCE – 1000 BCE
s2 Agriculture	ca 9,000 – 3500 BCE
s1 Biological emergence	ca 120,000 BCE

# Figure 4b. Three processes

$P_I$  (primary) = societal development, incl. dependence on nature

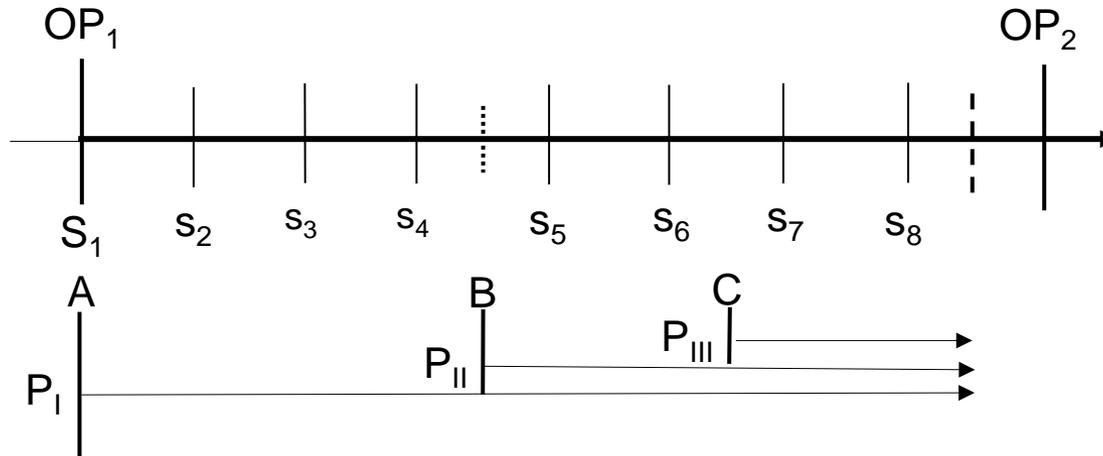
$P_{II}$  (secondary) = Axial culture\* (religions & philosophies)

$P_{III}$  (tertiary) = secularism, humanism, esp. science & technology

System formation events B in Classical period, C in Early Modern Period

Materialist histories (Marx):  $P_I$  &  $P_{III}$ ; idealist histories (Toynbee):  $P_{II}$  &  $P_{III}$

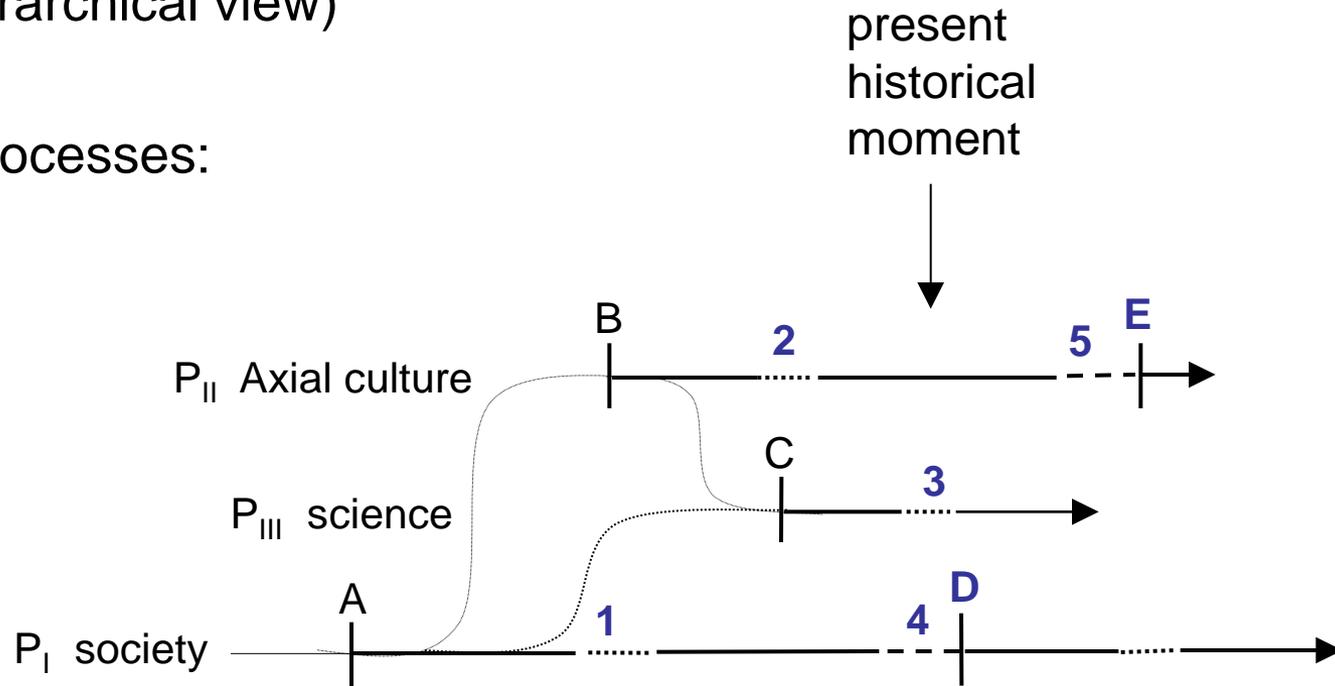
\*Culture here  $\neq$  'culture' in 'cosmos/nature/culture.'



# Figure 5. Macro-historical 3-process model

(hierarchical view)

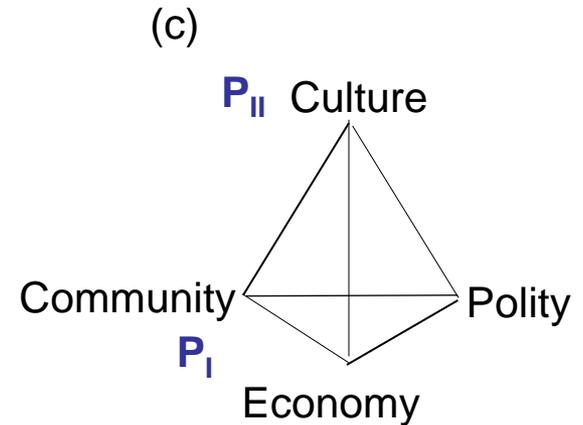
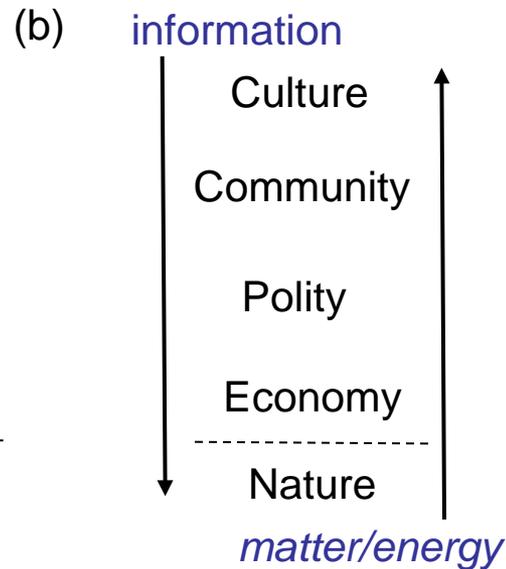
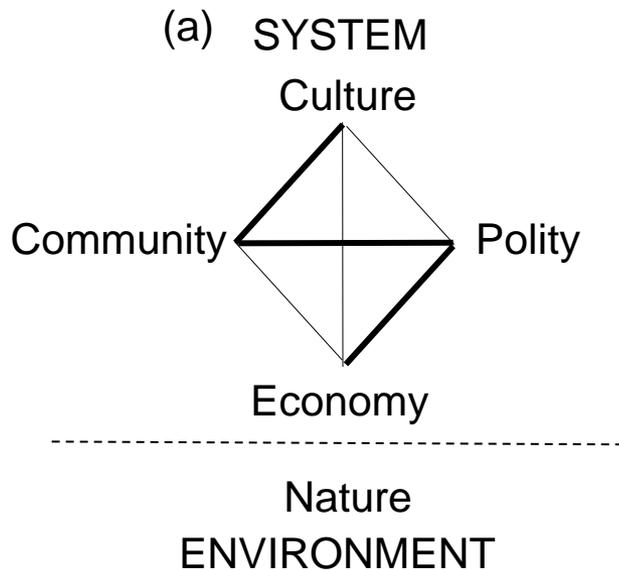
3 processes:



1,2,3 = minor barriers; 4,5 = major barriers

# Figure 6. Parsons' tetrad of a social system

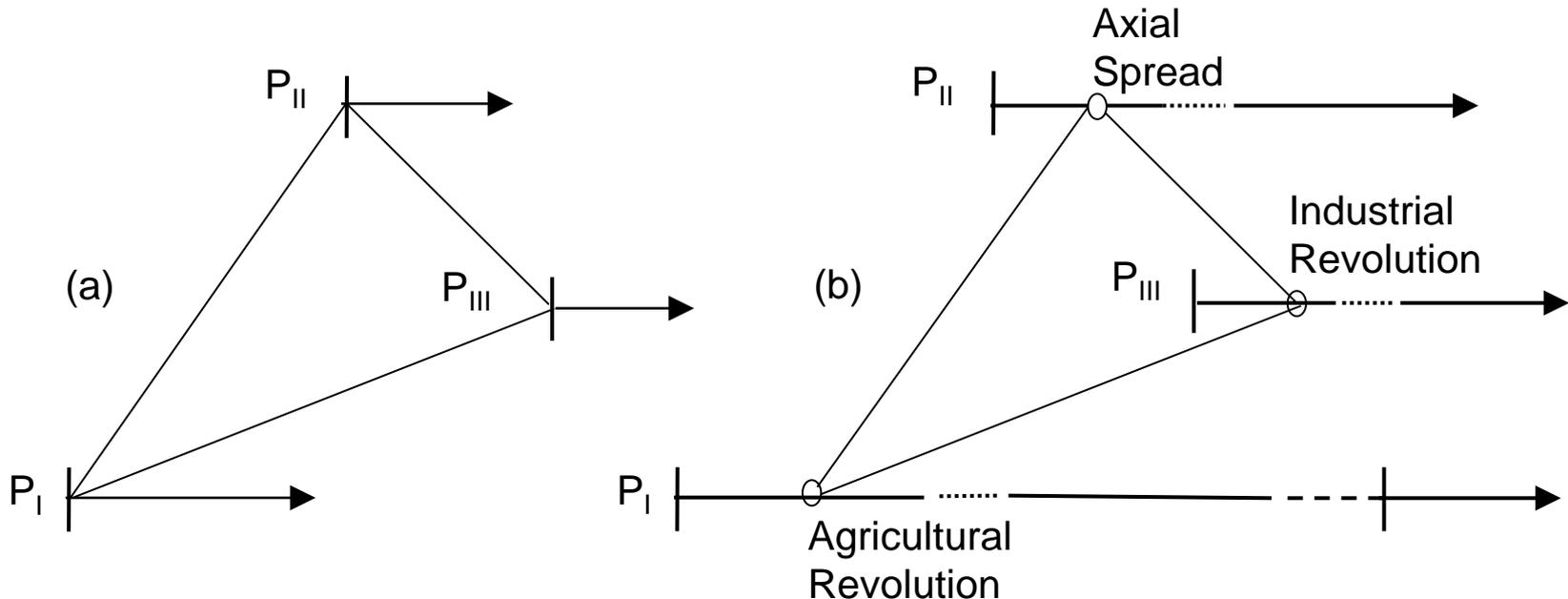
- (a) Parsons' **tetrad** of social systems (links to Nature not shown)
- (b) Hierarchical **information** & **matter-energy** flows
- (c) **Relation** of Parsons' scheme to processes in model  
For Marx:  $P_I$  = 'base,'  $P_{II}$  = 'superstructure'



# Figure 7. Two triads of processes (hierarchical view)

*Information above, matter-energy below.*

- (a) Triad of **system formation events**: **society** ( $P_I$ ) affected by **Axial** religions ( $P_{II}$ ,  $s_4$ ), resulting in & mediated by **modernity** ( $P_{III}$ ).
- (b) Triad of periods of successful **expansion** after system formation: Agricultural revolution (Agriculture); Axial spread (Post-Classical); Industrial revolution (Long 19<sup>th</sup> Century).



1. A story of culture

2. A systems process model

### **3. Application to universal history**

3.1 A three process model

#### **3.2 A view of the past**

*Figure 8. Three processes in the past*

##### **3.2.1 Axial transformation**

*Figure 9. Emergence of world system*

3.2.2 Modern transformation

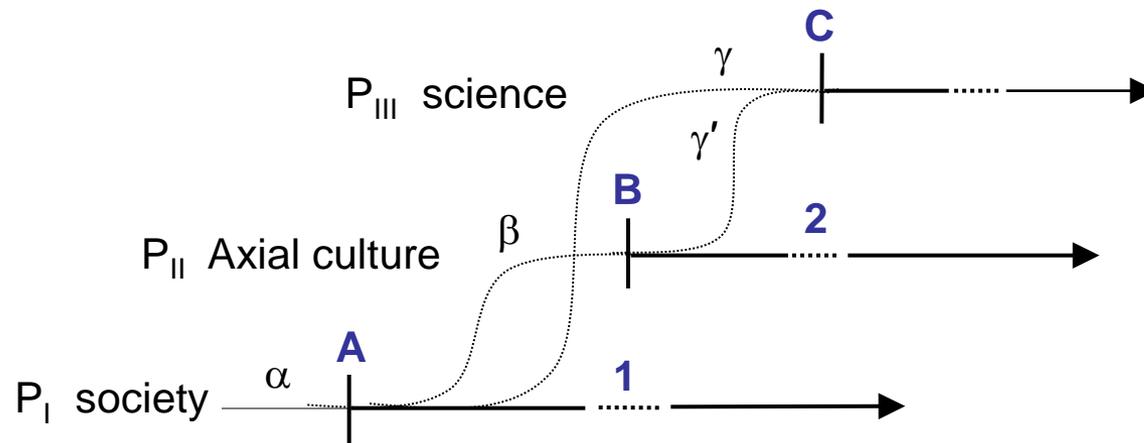
3.3 A view of the present

4. Summary

# Figure 8. Three process in the **past** (sequential view)

System formation events **A,B,C** & minor barriers **1, 2**

$\alpha$  = precursor to **A**;  $\beta$  = precursor to **B**;  $\gamma'$ ,  $\gamma$  = precursors to **C**



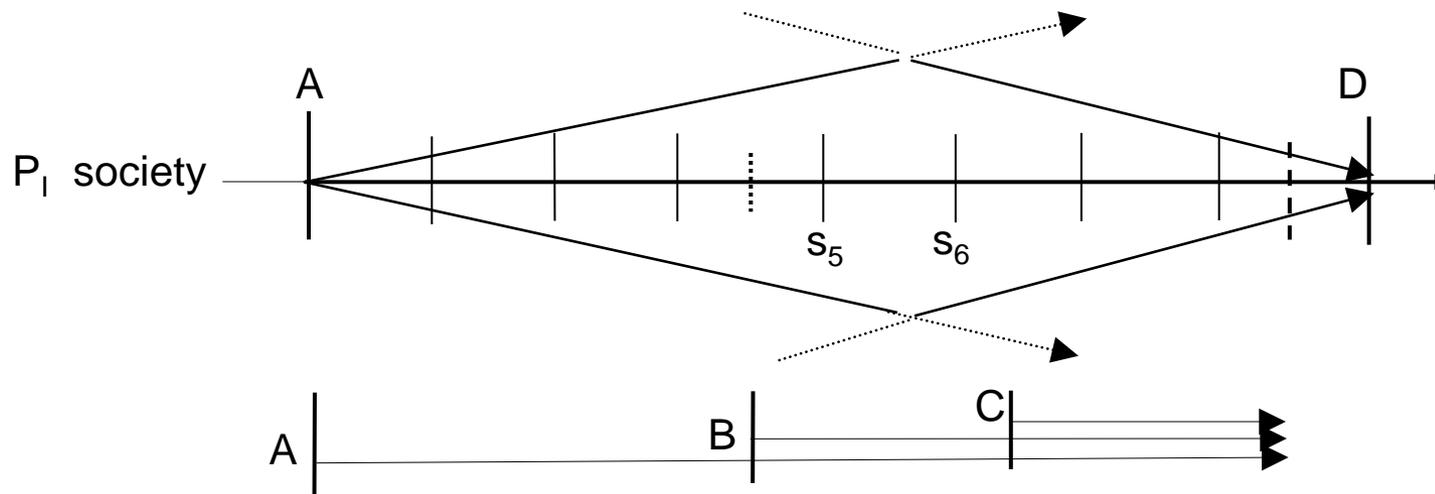
## 3.2.1 Axial transformation, B (1/2)

- A = **primary initiating event**: biological emergence of human species happened **once** (Africa), then human populations dispersed over the planet, & societies formed in **many locations**.
- B occurred in **some** locations (Eurasia-N.Africa): societies that encountered dangers, disorders, & **complexities of urban civilization** (point 1), where **religious-philosophical innovations of Axial period eased difficulties** & allowed continued development (Jaspers, Mumford, Armstrong). Urban civilization alienated individuals from society & presented large scale threats, but new Axial definition of the person mitigated these tensions.
- ‘Axial period’ = 6<sup>th</sup>-5<sup>th</sup> centuries BCE, e.g., **Socrates, Buddha, Confucius, Lao Tzu, Zoroaster, Hebrew prophets, mystics of the Upanishads**. Axial traditions were **religious** (e.g., Hinduism, Buddhism, Taoism, Hebrew monotheism) or **secular** (e.g., Greek philosophy, Confucianism). Here a **broader** conception of ‘Axial’ includes Christianity and Islam (later, but had roots in this period).
- *“The Axial Age was one of the most seminal periods of intellectual, psychological, philosophical, & religious change in recorded history; there would be nothing comparable until the Great Western Transformation, which created our own scientific & technological modernity.”* – Karen Armstrong

# Figure 9. Emergence of world system

Post-Classical ( $s_5$ ) **turning point** (expansion → concentration):  
**international trade system** (D is dynamic 'attractor' towards unity)

Early Modern ( $s_6$ ) (Americas now included): world system



## 3.2.1 Axial transformation: success, difficulties (2/2)

- For a time the union of  $P_I$  &  $P_{II}$  fostered creative development of these civilizations
- But ultimately traditions rigidified. The Axial traditions encountered developmental difficulties (point 2), e.g., disintegration, rigidification, & external vulnerability.
- Difficulties manifested in Christian Europe, in the Islamic Middle East, in Confucian (& Taoist & Buddhist) China, & in Hindu India in different ways & at different times, but societies integrated by religion-based culture everywhere faced challenges to further progress.

## 3.2.2 Modern transformation, C (1/2)

- In one location, these difficulties were overcome by a third system formation event (C, Early Modern period,  $s_6$ ) – Renaissance, Reformation, Enlightenment, & Scientific Revolution.
- $P_{III}$  here labeled ‘science’ for simplicity, but includes all forces that promoted priority of reason & experience over authority & revelation.
- Just as stalling of societal complexification ( $P_I$ ) was relieved by liberating influences of the Axial traditions ( $P_{II}$ ), so too was stalling of religion-based culture relieved – *initially* only in the West – by liberating influences of science & secular humanism ( $P_{III}$ ).
- The West, at great cost, grasped the important truth that uniting church & state accelerates the corruption of both. Just as  $P_{II}$  had differentiated from  $P_I$ ,  $P_{III}$  now differentiated from  $P_{II}$  &  $P_I$  & prried the two apart. From another point of view,  $P_{III}$  secularized  $P_{II}$ .

## 3.2.2 Modern transformation: success, difficulties (2/2)

- $P_{III}$  had profound effects on  $P_I$  &  $P_{II}$ . Transformation to **modernity** promoted **development of the West** & its **world dominance** during the last few hundred years. Interactions between societies became more extensive as the **human web spread** from Afro-Eurasia to cover the **entire planet** (McNeil & McNeill).
- As modernity took hold, a '**world system**' (Wallerstein) formed, & global factors gained ever greater significance. Material life of societies was transformed by utilization of **fossil fuels**. Increased **flow of energy** through Western societies allowed them to achieve heights of **wealth**.
- *After a successful beginning but before encountering its minor barrier, a process often enjoys a **period of vigorous expansion**. For  $P_{III}$  : the **Industrial Revolution** (Long 19th Century). (Figure 7(b) above.)*
- *But every expansion eventually encounters limitation. Today **modernity** ( $P_{III}$ ) has reached its **minor barrier** & simultaneous with this, **societal development** ( $P_I$ ) faces its **major barrier**. These difficulties are **exacerbated by tensions** involving  $P_{II}$ .*

1. A story of culture

2. A systems process model

### **3. Application to universal history**

3.1 A three process model

3.2 A view of the past

#### **3.3 A view of the present**

*Figure 10. Three processes in the present*

**3.3.1 Crises of society & of modernity**

**3.3.2 Crises involving religion**

*Figure 11. Biological beginnings*

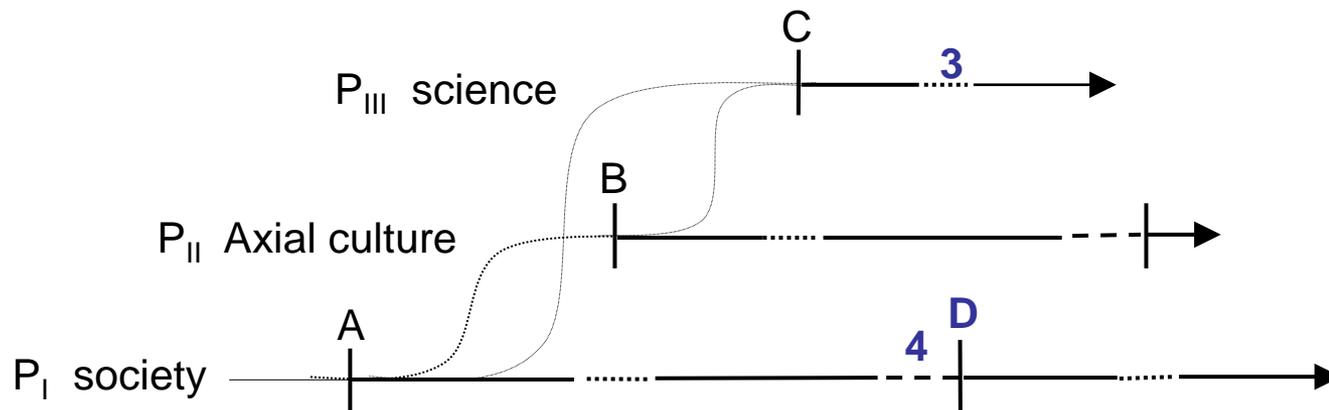
*Figure 12. Indigenous religion*

4. Summary

# Figure 10. Three process in the present (sequential view)

Two sources of crisis:

- In **society** (critical point **D**) & of **modernity** (barriers **3**, **4**).
- In **religion**: tensions in  $P_{II}$  in relation to  $P_I$  &  $P_{III}$



### 3.3.1 Crises of society (P<sub>I</sub>) & modernity (P<sub>III</sub>) (1/2)

- P<sub>I</sub>: In societies that experienced transformation to modernity, class divisions intensified, though in response to the challenge of Marxism divisions were somewhat mitigated. Societies that didn't accomplish this transformation lagged behind & were exploited by industrialized & militarily powerful West. At present, the North-South polarization of wealth/power & unequal development poses major challenges.
- P<sub>III</sub>: Modernity is not merely flawed by inequality. Because of technology, it now faces a crisis that is acute & fundamental, & not just societal but biospheric. Fossil fuel-based industrialization destroys the environment & causes climate change. Massive species extinctions are occurring, & planetary ecosystems are everywhere being degraded. Economies need to shift from exponential expansion to sustainable steady states.

### 3.3.1 Crises of society (P<sub>I</sub>) & modernity (P<sub>III</sub>) (2/2)

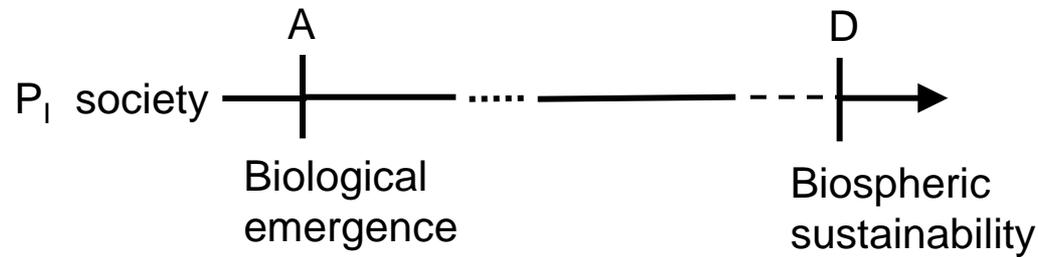
- Horrors of 20th century revealed dark side of modernity, tersely expressed by the year taken as start of Contemporary period: 1914. War, a constant of human history, had its destructive power greatly amplified by technology. Senseless slaughter of WWI was followed by the devastation of WWII & the evils of totalitarianism.
- Science was distorted for ideological ends by both Nazism & Communism, both of which functioned as substitutions for religion; a third ideology, Capitalism, also supported by inadequate science & inappropriate faith, is yet to evolve into a stable & rational form.
- Today, modernity is challenged & optimism in reason is a thing of the past. While a secular & humanist culture has flourished, with the undermining of religion, the coherence of Western culture was lost, & this incoherence affected everyone as Western influence spread across the planet.
- Modernization is differentiation, & this produces attempts at re-integration, hence resurgence of religious fundamentalism in politics & culture.
- Science itself is now challenged by its own complexity, having become overspecialized.

## 3.3.2 Crises involving Axial religions (P<sub>II</sub>)

- Religions are far from stage at which they might be integrated or make positive contribution to the knitting together of the planet, so **unification must occur *despite* tensions** between **civilizations** based on **different Axial traditions** (Huntington).
- The deepest tensions stem from reactions to Western dominance, & the strongest reaction comes from **political** elements in **Islam**, an Axial tradition which **awaits** its own **Reformation & Enlightenment**.
- Inter-civilizational **tensions** can only lessen via acceptance by the Axial traditions of religious **pluralism**. P<sub>II</sub> was originally **regional**. Despite claims to the contrary, **no tradition** is truly **universal**; **all** are partially **unique** (ideographic). But value inheres in *both* universality & uniqueness, not in the former alone.
- The **conflict between religion & science** (tensions between P<sub>II</sub> & P<sub>III</sub>) that began at the onset of modernity **continues** today. Efforts of **reconciliation** help reduce these tensions & raise the **possibility** of a new **cultural coherence**, but conflict remains necessary to (i) **purify religion** & (ii) **correct** the distortions of **narrowly interpreted science**.

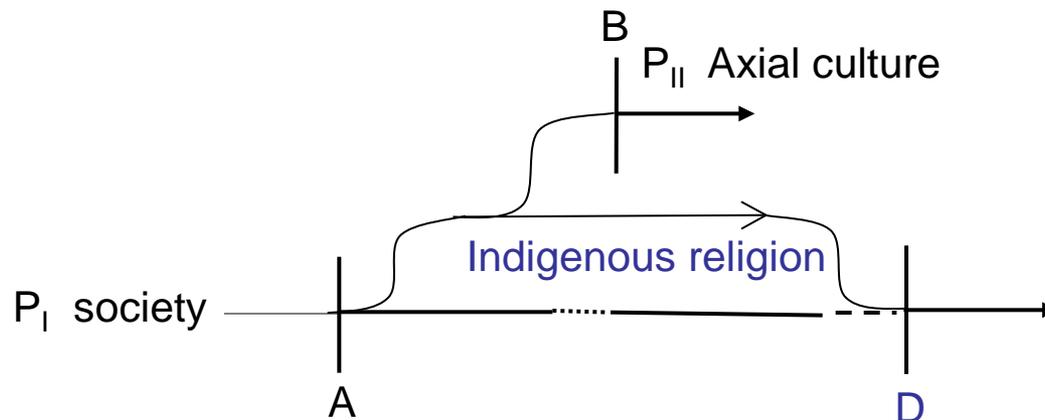
# Figure 11. Biological beginning & new beginning

*D echoes A* at a higher level; on global rather than local scale.



## 3.3.2 Opportunities for Indigenous religions

- Religion has role to play in addressing current **environmental crisis**, but *Axial* traditions **cannot occupy center stage**.
- Those **religions** that were not precursors to the Axial traditions, that were instead aligned with **hunter-gatherer** ( $S_1$ ) & **agricultural** ( $s_2$ ) phases of societal development, did not play *major* roles in most of human history, but have **new relevance** as world faces biospheric crisis of  $P_I$  &  $P_{III}$ . **Indigenous religions** with their deep **connections** to the **natural world** remind us that **nature is sacred** & that personal & local ecological knowledge is a human possibility.
- Figure 12. Indigenous religion & ecological crisis



## 4. Summary

- Model **more complex** than structures of many historical theories: includes (a) **both lawful & contingent** processes, (b) different **conceptions of time**: lineal, cyclic, dialectical, thermodynamic, singularity; (c) both **materialist & idealist** views of human history
- Encompasses in a unified framework:
  - **Axial & Modern Transformations**
  - **Agricultural, Axial, Industrial Revolutions**
  - Emergence of **world system**
  - Challenge of biospheric **sustainability**
  - Crises of **modernity**
  - **Clash** of religious **civilizations**
  - **Conflict** between **science & religion**
- Of course, good stories are told by **story tellers, not systems theorists**. But this paper offers a **skeletal structure** for such a story. If cast in terms of systems ideas that are very general, such a story of 'culture' could link to our stories of 'cosmos' & 'nature,' & inform us about **"who we are, where we are from, where we are going, & how we should live"** (this was the conference theme).