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Holism and Human History

Martin Zwick

Portland State University, zwick@pdx.edu

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Holism and Human History

Martin Zwick

Professor of Systems Science
Portland State University
Portland Oregon 97207 USA

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http://www.pdx.edu/sites/www.pdx.edu.sysc/files/media_assets/hhh_sp.pdf

<http://www.metanexus.net/conference2009/articles/Default.aspx?id=10857>

zwick@pdx.edu

<http://www.pdx.edu/sysc/research-systems-philosophy>

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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

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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.

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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.

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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 what we call 'modernity.' Today, this third current of development also falters, & inter-civilizational tension afflicts the secondary stream. Much more seriously, the primary process has reached its second & critically hazardous juncture – the current global environmental-ecological crisis. System integration via a new organizing principle is needed on a planetary scale.

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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

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1.1 The challenge of universal history

- Telling story of culture (as opposed to cosmos & nature) is job of history, but historians 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 well regarded by most historians.
- 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 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.

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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.
- Paper 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, 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.

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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

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Main ideas of the model

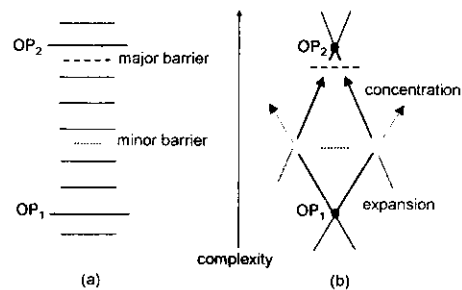
- A process is governed by some 'organizing principle' (OP).
- The OP crystallizes ('concentrates') in a system formation event.
- The process develops ('expands') in stages (potential → actual).
- Development is partially determined & partially random.
- It is shaped by internal factors & subject to 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.

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Figure 1. Complexity of structure

(a) Levels of complexity; system formation events ⇔ ordinary levels

(b) Complexification as expansion & concentration. Minor barrier divides OP₁ domain in two.



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Example

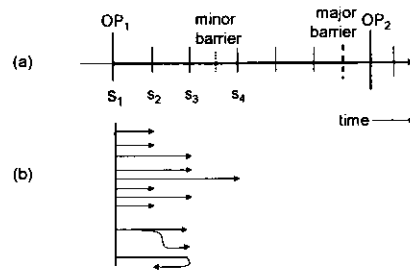
Not all levels are 'equal'.

OP₃	multi-cellular organism tissues, organs, organ systems above minor barrier, developmental specification
OP₂	cell small & large molecules & molecular aggregates above minor barrier, genomic specification
OP₁	atom

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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. Processes reaching any stage don't necessarily reach it at same moment. Process can branch or reverse.

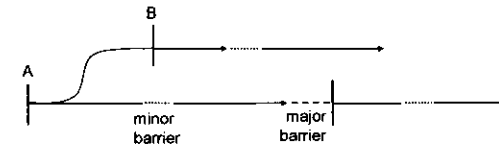


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Figure 3. A secondary augmenting process

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

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



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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

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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. Two triads of processes

Figure 6. Parsons' tetrad of a social system

Figure 7. Two triads of processes

3.2 A view of the past

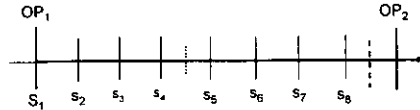
3.3 A view of the present

4. Summary

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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

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Figure 4b. Three processes

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

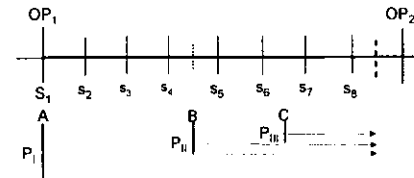
P_{II} (secondary) = Axial* culture (religions & philosophies)

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}

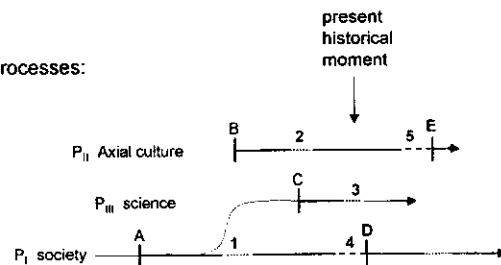
Culture here ≠ 'culture' in 'cosmos/nature/culture.'



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Figure 5. Macro-historical model: 3 processes

3 processes:



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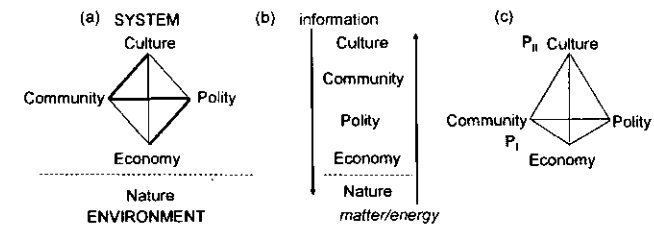
Figure 6. Parsons' tetrad of a social system

(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

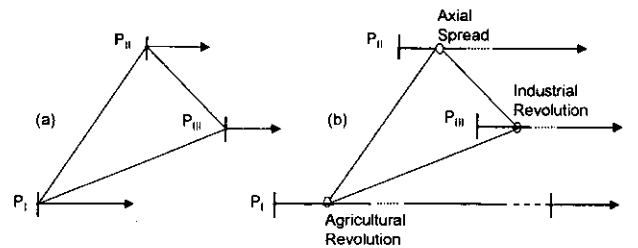


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Figure 7. Two triads of processes

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 expansion after system formation: Agricultural revolution (Agriculture); Axial spread (Post-Classical); Industrial revolution (Long 19th Century).



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1. A story of culture

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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

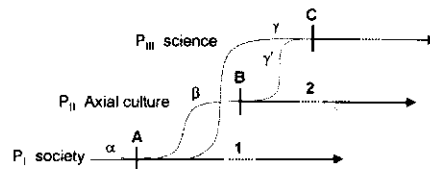
4. Summary

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Figure 8. Three process in the past

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

α = precursor to A; β = precursor to B; γ , γ' = precursors to C



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3.2.1 Axial transformation (1/2)

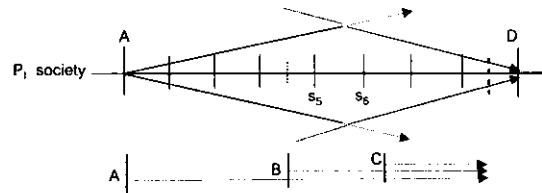
- A = primary initiating event, biological emergence of human species. Happened once (Africa), then human populations dispersed over the planet, & societies formed in many locations.
- B occurred in some locations (Eurasia): societies that encountered dangers, disorders, & complexities of urban civilization (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' = 6th-5th 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) & secular (e.g., Greek philosophy, Confucianism) forms. 'Axial' here includes not only Christianity but also Islam (both 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

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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



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3.2.1 Axial transformation (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.

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3.2.2 Modern transformation (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} , 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, had grasped the important truth that the uniting of 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 & pruned the two apart.

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3.2.2 Modern transformation (2/2)

- P_{III} had profound effects on P_I & P_{II} . Transformation to modernity promoted development of the West & 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.)*
- *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} .*

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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

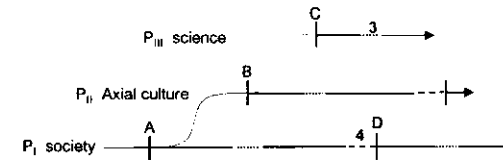
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Figure 10. Three process in the present

Two sources of crisis:

- In society & of modernity: event D & barriers 3, 4.
- In religion: tensions in P_{II} in relation to P_I & P_{III}



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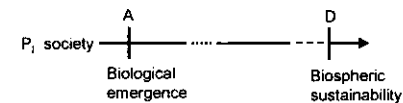
3.3.1 Crises of society & of modernity (1/2)

- 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.
- 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.

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Figure 11. Biological beginning & new beginning

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



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3.3.1 Crises of society & of modernity (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, has 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, 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 the influence of the West spread across the planet.
- Modernization is differentiation, & this produces attempts at re-integration, hence resurgence of religious fundamentalism in politics & culture.
- Science itself is challenged by its own complexity, having become overspecialized.

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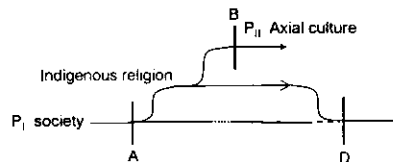
3.3.2 Crises involving Axial religions

- 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 radical elements in Islam, an Axial tradition which awaits its own Reformation & Enlightenment.
- More generally, what is needed to lessen inter-civilizational tensions is acceptance by the Axial traditions of religious pluralism. P_{II} was originally regional. Despite claims to the contrary, no tradition is truly universal; all are partially unique. Moreover, value inheres in both universality & uniqueness, not in the former alone.
- The conflict between religion & science (tensions between P_{II} & P_{III}) 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 struggle remains necessary to purify religion & correct the distortions of narrowly interpreted science.

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3.3.2 Opportunities for Indigenous religions

- Religion has role to play in addressing current environmental crisis, but Axial traditions will not 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 . 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



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4. Summary

- Model more complex than structures of many historical theories: includes both lawful & contingent, different conceptions of time: lineal, cyclic, dialectical, thermodynamic, singularity; relates materialist & idealist views of human history
- Encompasses:
 - 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."

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