


The Ohio Valley Philosophy of Education Society

The Politics of Enlightenment:
Philosophy of Education in Age of Obama

SEPTEMBER 23-25, 2010

BERGAMO CONFERENCE CENTER



Dualisms & dualities, distinctions & différance:
Uncovering symmetries
in post-enlightenment pedagogies

Sabah E. Karam Information Specialist,
Planning & Information Technology

Morgan State University, Baltimore, MD



Dualism vs Duality

Dualism is a philosophical concept limited to the domain that examines the relationship between the mind and the body .

Duality also refers to phenomena having a twofold nature and characterized by states that are mutually exclusive. Duality differs from dualism, however, in that the dichotomous states are mutually interdependent or complementary.

Examples of dualities/terms

osteoblast- osteoclast

nature – nurture

niche – biotope

oxidation - reduction

particle – wave

permittivity – permeability

points - lines

proton – electron

reflective – reflexive

semantic – syntactic

supply – demand

systolic - diastolic

thesis – antithesis

antagonisms

bifurcation binary bipolar bivalence

complementary conjugate correlation covariant

dialectic diametric dichotomy dipole

equivalence

invariant inverse

mutualism

opposite

pairs parity polarity

reciprocal

symmetric synthesis

Historical Roots of Dualism/Duality

In 1630 Rene Descartes, the originator of *mind-body dualism*, showed that the behavior of light could be recreated by modeling wave-like disturbances in a universal medium, called plenum. Christiaan Huygens, born 1629, conducted experiments supporting Descartes views. Issac Newton, on the other hand, argued that light is composed of particles (corpuscles) and could be refracted when passing into a denser medium. Investigations of light, *wave-particle duality*, developed in tandem to issues related to the mind-body problem.

Physicists have resolved the issues of duality in light properties. The Copenhagen Interpretation states that duality applies to all material substances, not just light, and that all matter exhibits both wave like and particle like properties simultaneously. The debate started around the time of Newton but was only resolved at the time of Einstein. Evidence had been accumulating for around 300 years supporting both the wave and the particle nature of light. The debate among physicists finally ended at the beginning of the 20th century. Wave-particle duality is a physical law. Einstein won a Nobel Prize, not for the Theory of Relativity, but for the Photoelectric Effect in which the particle nature of light was re-demonstrated in 1905.

Natural Philosophy & Metaphysics

It was in the early 1800s that natural philosophy, now called science, and metaphysics began to part ways. Prior to that it was common for philosophers to ask metaphysical questions like *What is Motion?*, *What is Matter?* (What's the matter?), and *What is Force?*

Empirical studies in the physical world required that metaphysical questions be answered. Rational and logical methods and physical investigations were not separate enterprises. At the end of the 17th century the philosopher John Locke, Father of Liberalism who coined *tabula rasa*, wrote disapprovingly that natural philosophy “is not capable of being made a science.”

NOTE: Aristotle's *Metaphysics* (ontology, theology, first principles) was originally called “first philosophy” by him. The editor of his works placed this chapter after *Physics* and called it “the books that come after the [books on] physics” (*ta meta ta physika biblia*) which was misread by Latin Scholastics as meaning “the science of what is beyond the physical.”

Scientific roots of monism/dualism

- **Isaac Newton (1642-1727)**
 - *Philosophiae Naturalis Principia Mathematica*
 - set of four rules for scientific reasoning.
 - quantification of qualitative data

- **Johann Wolfgang von Goethe (1747-1832)**
 - *Scientific Studies*
 - *Theory of Colours*
 - *Metamorphoses of Plants*

Newton's Admonition

Newton's contributions to physics, mathematics, and metaphysics are well known and he warned the discipline:

O Physics beware of Metaphysics!

Einstein, well aware of Newton's admonition, referred to himself as a "**tamed metaphysicist**" in a 1954 book (*Ideas and Opinions*).

Stephen Hawking, in a book published last month, proclaims the death of philosophy. He obviously ignored Newton's admonition! He claims that questions like *How can we understand the world in which we find ourselves? How does the universe behave? What is the nature of reality? Where did all this come from? Did the universe need a creator?*

Traditionally these are questions for philosophy, but *philosophy is dead*. Philosophy has not kept up with modern developments in science, particularly physics. Scientists have become the bearers of the torch of discovery in our quest for knowledge.

Scientific Studies (Goethe)

- A “living quality” exists in all physical phenomena, animate and inanimate. This quality is
 - not geometric but organic,
 - not pre-existing but evolving,
 - not an imposed order but based on intuition.

A defining (monistic) characteristic of living matter

- **Subject and Object are dissolved together.**

The representation dilemma

- As far as the laws of mathematics apply to reality they are not certain, and as far as they are certain they do not apply to reality. *A.Einstein*

$$\text{certainty} + \text{reality} = \text{constant}$$

- “Science without Religion is lame and Religion without Science is blind.” *A.Einstein*

$$\text{religion} + \text{science} = \text{constant}$$

Historical Dualisms

Qualitative	Quantitative
Subjective	Objective
Empiricists	Rationalists
Inductive	Deductive
Aristotelian	Galilean
Teleological	Causal
Descriptive	Predictive
Hermeneutic	Positivistic
Artistic	Scientific

Contemporary Dualities

Intentional	Unintentional
Semantic	Syntactic
Functional	Attributional
Agency	Structure
Methods/Behavior	States/Properties
Synthetic	Analytic
Synchronous	Asynchronous
Dynamic Systems	Static Systems
Category Theory	Set Theory

LEGACY OF MONISM & DUALISM

Monistic Philosophies & German Philosophers

1714 -----1787-----1807-----1866 -----1882-----1904
Leibnitz-----Kant -----Hegel-----Haeckel1-----Nietzsche-----Haeckel2
Monadology----Cat. Imp.----Abs. Spirit----Recap. Th.---- 'God is Dead' --- Monist
Rel.

1871: Darwinism

1877: Social Darwinism

Dualistic Philosophies & French Philosophers

375 B.C. -----1641-----1687-----1913 -----1949-----1967
Socrates-----Descartes-----Newton-----Husserl-----Dewey-----Derrida
Dialectic----mind-body----Prin. Math.----Phenomenology----Distinctions-----Deconst

A Ubiquity of D' s

- | | |
|---------------------------|---|
| 1. Desargues (1639) | Duality (geometry) |
| 2. Descartes (1641) | Dualism (philosophy) |
| ----- | |
| 3. Bentley & Dewey (1949) | Distinctions (theory of knowledge) |
| 4. Merleau-Ponty (1945) | Dynamic Dualism |
| 5. Derrida (1963, 1967) | Différance & Deconstruction
différance is essential to language because it produces
“what metaphysics calls the sign (<i>signified/signifier</i>)” |
| | Heidegger (1927) Destruktion (of metaphysics) |
| 6. Holton (1973) | Thema-antithema (paradigm shift) |

Dewey Distinctions (dualities)

Ontology	Logic
Semantics	Syntactics
Actual Language	Abstract system of signs
Semantics	Syntax
Factual truth	Logical truth
Descriptive signs	Logical signs
Extensional	Intensional
Designata	Expressions
Specification	Definition
Inter-actions	Self-Action

Bentley, A. and Dewey, J. (1949). *Knowing and the Known*. Retrieved from <http://www.aier.org/aier/otherpublications/KnowingKnown/KnowingKnownFullText.pdf>



Derrida Deconstruction

In classical logic, modus tollens
(Latin for "the way that denies by denying")
uses the following argument

If P, then Q.

Not Q.

Therefore, not P.

Denying the consequent denies the antecedent.



The Revolt against Dualism

An Inquiry concerning the Existence of Ideas

Lovejoy writes in the Preface that the principal purpose of this volume is not to present a private and original speculation, but to show, through a critical survey of the reflection of the greater part of a generation of philosophers in America and Great Britain upon two [monism and dualism] important philosophical issues, that certain conclusions with respect to those issues have thereby been definitely established.



Robert Frost

Robert Frost (1874-1963), the poet, affirmed his philosophical support for dualism . In a private letter in 1959 he declared "I am a dualist!"

In the Summer 2008 issue of Modern Age review of the book J.F. Desmond summarizes Frost's position saying:

"Dualism for Frost meant that all reality is comprised of matter and mind, or as he preferred, matter and spirit; as opposed to a monism that sees reality comprised of one element, spiritual or material. In contrast to Platonism's pure idealism on the one hand, and simple materialism on the other, Frost believed with Aristotle that matter and spirit were equally real and that all reality consisted of 'things in pairs ordained to everlasting opposition.' "

Hegel & Marx, Kuhn & Horton

Hegel: Dialectical Spiritualism,
Idealistic Dialectic
Absolute Idealism (ontologically monistic)

Marx: Dialectical Materialism
standing “Hegel on his head”

Holton: Thema-Antithema
Kuhn, scientific revolution = paradigm shift

Geocentric	—————>	Heliocentric
Newtonian gravity	—————>	General Theory of Relativity
Lamarckian inheritance	—————>	Darwinian natural selection
Classical Mechanics	—————>	Quantum Mechanics

Continuity & Discreteness: A Taxonomy

Several academic disciplines can be classified using the dual concepts

continuous

calculus

analog computers

ontology

category theory

relativity theory

field theory

topology

discrete

statistics

digital computers

epistemology

set theory

quantum mechanics

particle physics

geometry

Four dynamic duality models

- Infectious diseases: Microbial infections extend along a dynamic continuum from *conflict to cooperation* and always involve symbiosis and pathogenesis - a duality relationship that is dynamic. It is the most fundamental problem in infectomics. [S.Huang](#)
- **Social systems**: The theory of structuration reconciles dichotomies: agency & structure, subjective & objective, micro & macro views. *Structure and agency* interact in a balanced and continuous fashion. A **duality of structure**: social structures enhance and make social agency possible and, at the same time, social action creates the social structures. [A. Giddens](#)
- **Quantum mechanics**: a wave-particle complementarity and kinematic-dynamic complementarity. [N. Bohr](#).
- **Cognitive science**: *Dual-system models* explain social cognition and behavior as a function of two mental faculties, each operating according to different principles yet dynamically interconnected: the *Reflective-Impulsive Model*. [Strack & Deutsch](#)

Formula for dynamic-dualities

- Subject + Object = *const*
- Symbiosis + Pathogenesis = *const*
- Reflexive + Instinctive = *const*
- Agency + Structure = *const*
- Wave + Particle = *const*
- Quality + Quantity = *const*

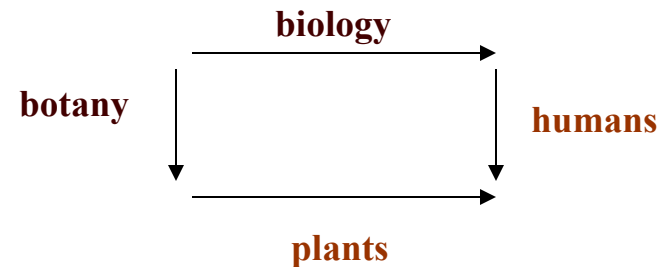
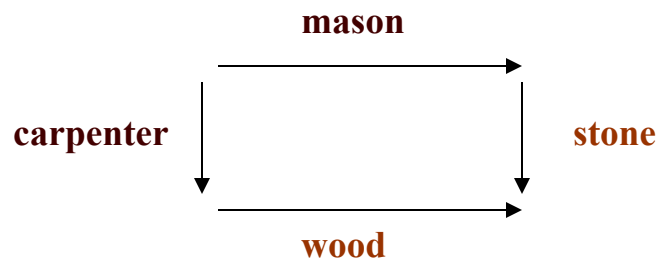
Proportions: Word Analogies

Masons are to **stones**
as carpenter are to **wood**

Biology is to **humans**
as botany is to **plants**

mason : **stone** =
carpenter : **wood**

biology : **humans** =
botany : **plants**



REFERENCES

- Bohr, N. (1934/1987), *Atomic Theory and the Description of Nature*, reprinted as *The Philosophical Writings of Niels Bohr, Vol. I*, Woodbridge: Ox Bow Press.

- Dewey, J. (1939). *Logic: The Theory of Inquiry*. NY: Holt.
- Giddens, A. (1984). *The Constitution of Society: Outline of the Theory of Structuration*, University of California Press.
- Strack, F. & Deutsch, R. (2006). Duality models in Social Psychology: From dual processes to interacting systems. *Psychological Inquiry*. 17(3), 166-172.
- Lovejoy, A.O. (1930, 1936). The revolt against dualism. (reprinted with Introduction by J.B. Imber 1996). NJ: Transactions Publishers.
- Descartes, R. (1641) *Meditations on first philosophy*, 1984 translation by Cottingham, J. Stoothoff, R. & Murdoch, D. (1984) *The philosophical writings of René Descartes*, 2, 1-62. Cambridge: Cambridge University Press.vol. 2, pp. 1-62.
- Arthur O. Lovejoy (1873 – 1962) founded the field known as the "history of ideas" in the 1936 book: *The Great Chain of Being: A Study of the History of an Idea* (1936). Harvard University Press.

REFERENCES (cond' t)

- *Robert Frost: The Poet as Philosopher* by Peter J. Stanlis. Foreword by Timothy Steele (Wilmington, DE: ISI Books, 2007).

- Derrida, J. (1967). *De la grammatologie*. Paris: Les Éditions de Minuit. 1976 translation by Spivak, G. C. *Of grammatology*. Baltimore & London: Johns Hopkins University Press.
- Derrida, J. “Letter to a Japanese friend” in *Derrida and différance*. (1985). Wood, D. and Bernasconi, R., editors. Warwick: Parousia, p.1. Retrieved from http://lucy.ukc.ac.uk/Simulate/Derrida_deconstruction.html
- Hartnack, Justus (2001). *Kant's theory of knowledge: An introduction to the critique of pure reason*. Hackett Publishing. p. 87.
- Schanck, P.C. (1992). Understanding postmodern thought and its implications for statutory interpretation. *Southern California Law Review*, 65, 2505-597.
- Zhou, W., Huang, S, & Jong, A. (2008). Focal Point Theory Models for Dissecting Dynamic Duality Problems of Microbial Infections. *J Biomed Biotechnol*, 15(4), 234-345.