

How the Nature of Nature and the Nature of Science Affects the Nature of Creation Care

Johnny Wei-Bing Lin
Computing and Software Systems Division,
University of Washington Bothell
Physics and Engineering Department, North Park University

July 25, 2016

Outline

A Taxonomy for Considered Obedience

The Nature of Worldviews

The Nature of Science Epistemology

The Nature of Science-Policy Connections

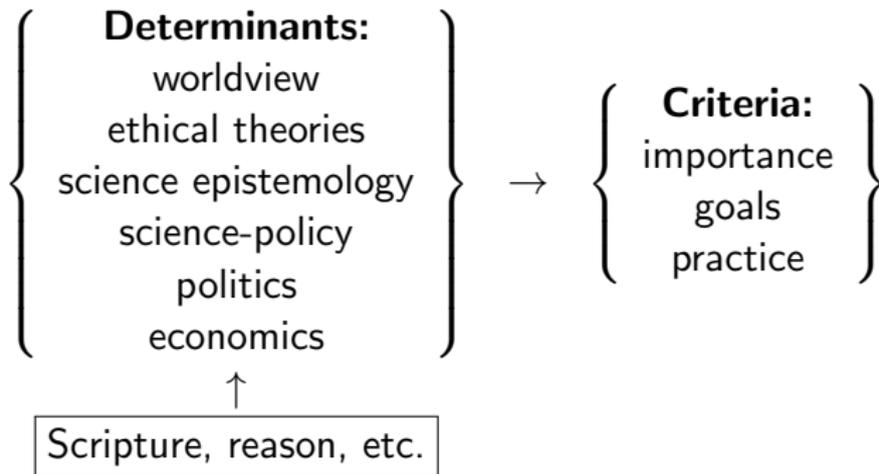
The Effects of Worldviews and Science Epistemology on
Translating Science Into Policy

Obedience to a command requires clarity in three criteria

- ▶ **Importance** of the command (e.g., is it optional, a required duty, contextually applied, etc.).
- ▶ **Goals** of the command (e.g., what is the command trying to accomplish).
- ▶ **Practice** of the command (e.g., what you actually do to obey the command).

Determinants and criteria

For creation care (and other topics), the criteria for obedience are determined by the following determinants:



Unfortunately, most dialogue about creation care only covers a few of these determinants.

A shameless commercial break for my book

- ▶ Source for today's topics and covers all the determinants.
- ▶ *The Nature of Environmental Stewardship: Understanding Creation Care Solutions to Environmental Problems*, Pickwick Publications, 2016.
- ▶ To get the book:
 - ▶ **The book table at this meeting!**
 - ▶ Free chapter: nature.johnny-lin.com
 - ▶ **Pick-up a flier in back.**
 - ▶ Amazon and Wipf and Stock.
- ▶ Today: The roles of worldviews and science epistemology.



What are worldviews

When you see nature, what do you see?

- ▶ **Reality**: What does it mean and is it ultimate?
- ▶ **Origin** of universe and human beings?
- ▶ **Condition** of environment and humanity?
- ▶ **Solution** for human and environmental problems?
- ▶ **Destiny** for humanity and nature?



Ptolemy, Euclid, and a cosmological diagram

Johnson (2007); Wellcome Images

The Christian worldview of nature

- ▶ Universe is created by a good and transcendent God who nonetheless is not far away and continues to sustain His creation.
- ▶ Universe is material but not only material or “merely” material (i.e., an existence apart from God).
- ▶ Creation is best understood through worshipping the Creator.
- ▶ God charges humans to be stewards of the creation.
- ▶ God will restore creation to what it is meant to be.

The range of worldviews

- ▶ Buddhist: Existence is all there is and there is no ontological separation between humanity and nature.
- ▶ Confucian: This world is all there is and humans are “elder brothers” to nature.
- ▶ Taoism: The world is all there is and humans must live in harmony with the rhythms of nature (“go with the flow”).
- ▶ (Neo-)Enlightenment: Nature is mere “matter in motion” and purposeless.
- ▶ Romantic: Nature is best understood via aesthetics.



Women Mowing in
the Mountains
Carl Spitzweg
(1808–1885)

Photograph by Joachim Nagel

What worldviews provide

- ▶ Importance: A framework that limits what can (or should) be considered, e.g., monist vs. purpose-driven concept of personhood.
- ▶ Importance: Preference for protecting “valuables” and the value of different kinds of ontological forms, e.g., nature as the work of a Master Craftsman gives nature the value of such art.
- ▶ Goals: Motivation for the goals of creation care.

Worldviews do not generally prescribe actions

- ▶ Non-specific and non-deterministic: Harmony with nature does not tell you how large to make your windows.
- ▶ Philosophical reductionism not true:
 - ▶ Worldviews alone do not yield actions.
 - ▶ Ethics adds something additional to cosmology and ontology.
- ▶ What is \neq what should be: Fact-value dualism.

Why science epistemology?

- ▶ Epistemology: How we know what we know.
- ▶ What does science investigate?
- ▶ What is the epistemic authority of science?
- ▶ The implications of:
 - ▶ Range of epistemologies → range of understandings of epistemic authority.
 - ▶ Science primarily investigates the material world.



Rodin's The Thinker,
Copenhagen, Denmark

(Photo by Pedro Cambra)

Science as hypothesis-testing

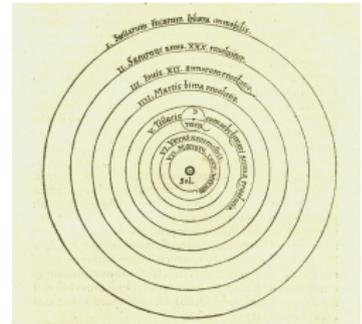
- ▶ Hypothesis → Test → Confirmed? → Retest.
- ▶ Multiple cycles leads to truth → truth is accretive.
- ▶ Self-correcting mechanism.



Spiral Staircase, Vatican Museums
(photo © User:Colin / Wikimedia Commons)

The social constructionist critique of hypothesis-testing

- ▶ But is this how science actually works?
- ▶ Thomas Kuhn: New models supplant old models not because they are more true but because they are more “useful” to the community.
- ▶ Usefulness of a paradigm not completely determined by accuracy of predictions: Copernican model less accurate than Ptolemaic without including 30 extra circles.
- ▶ Science is a “social construct,” not an inevitable road to truth.



Heliocentric Model
from Copernicus's *De
Revolutionibus* (1543)

Authority of science

Different epistemologies → spectrum of epistemic authority:

- ▶ Science as authoritative, providing the absolute (or at least best) truth about the environment.
- ▶ Science as any other human form of knowing.
- ▶ Somewhere in between.

Summary of the range of science-policy models

- ▶ Policy prescriptive.
- ▶ Fact-value dualism.
- ▶ Supporting Role (Science is Neutral).
- ▶ Supporting Role (Science May Not Be Neutral).
- ▶ Honest Broker of Policy Alternatives.

Policy prescriptive model

science → policy

values

- ▶ Science directly dictates policy.
- ▶ Values (should) have no role in policymaking.
- ▶ Scientists make the best policymakers.

Fact-value dualism model

science → values → policy

- ▶ Science provides facts.
- ▶ Ethics, politics, etc. provide values.
- ▶ Values interpret the facts and yields policies.
- ▶ Scientists cannot be policymakers.

Supporting Role (Science is Neutral) model

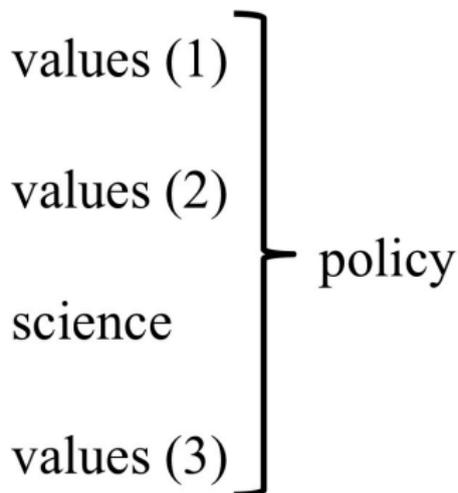
values (1)

values (2) + science → policy

values (3)

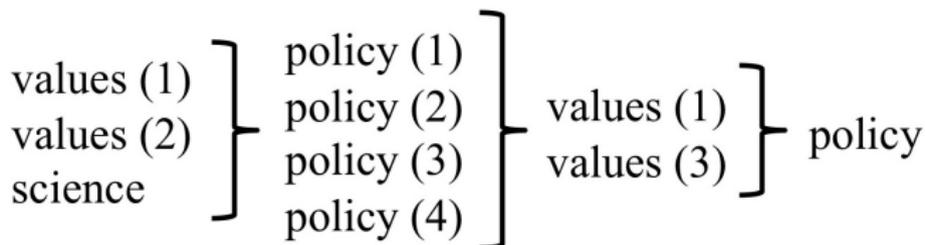
- ▶ Science is neutral and objective but not necessarily authoritative.
- ▶ Science can bring together disparate stakeholders into dialogue.

Supporting Role (Science May Not Be Neutral) model



- ▶ Science has no special epistemic status.
- ▶ Science is just one input amongst all the others.

Honest Broker of Policy Alternatives model



- ▶ Advocates narrow policy options.
- ▶ Science works to expand policy options instead of narrowing policy options.
- ▶ Science focuses on providing new options rather than greater certainty (e.g., CFC alternatives).
- ▶ E.g., U.S. Office of Technology Assessment.

Science-policy models grouped by epistemic authority

Science has high epistemic authority:

- ▶ Policy prescriptive.
- ▶ Fact-value dualism.

Science unique in certain ways but less than commonly believed:

- ▶ Supporting Role (Science is Neutral).
- ▶ Honest Broker of Policy Alternatives.

Science not unique:

- ▶ Supporting Role (Science May Not Be Neutral).

The role of worldviews and science epistemology in selecting one's science-policy framework

Questions to ask:

- ▶ Does science only give us knowledge of the material?
- ▶ How “material” is nature?
- ▶ What level of epistemic authority does science have?

Implications of answers: Choose science-policy frameworks where science plays a humbler role if:

- ▶ Science only addresses the material and important aspects of nature are not material.
- ▶ The epistemology of science one uses implies science does not have epistemic authority.

Example of a worldview + science epistemology → science-policy framework sequence

Answers to questions:

- ▶ Science is limited to describing the material.
- ▶ World is material but important elements are non-material.
- ▶ Science has elements of objectivity but is limited in its epistemic authority.

Implication of answers: Choose a science-policy framework with a humbler role for science:

- ▶ Supporting Role (Science is Neutral).
- ▶ Honest Broker of Policy Alternatives.
- ▶ Supporting Role (Science May Not Be Neutral).

Conclusions

- ▶ The content of creation care requires input from a wide-range of determinants: worldviews, ethics, science epistemology, etc.
- ▶ There is a broad range of ways of connecting science to policy.
- ▶ Worldviews and science epistemology strongly influence which model(s) we use to connect science to policy.
- ▶ Environmental controversies marked by debates over science may be better served by utilizing alternate science-policy models.