Ambiguity 2

I&E Basics

Latour - Science in action

- Published 1987, heavily influenced by Callon
- Main metaphor: Janus Bifrons (see above)
- Key points
  - “Science” is made of not only technical research but also (and mostly) of social links, interactions, enrolments...
  - Paradigmatic changes can be found by exploring controversies (see also Kuhn)

First principle

The fate of facts and machines is in later users' hands; their qualities are thus a consequence, not a cause, of a collective action.

First rule of method

We study science in action and not ready made science or technology; to do so, we either arrive before the facts and machines are blackboxed or we follow the controversies that reopen them.

Black boxes

- Created (and nested) by scientists to make it more difficult to falsify a theory

- Why do they do this?

Black Boxes - Examples

Scientific Literature

- How do citations work?
- Why is an article cited often?
- Why is an article never cited?

Second principle

Scientists and engineers speak in the name of new allies that they have shaped and enrolled; representatives among other representatives, they add these unexpected resources to tip the balance of force in their favour.

Second rule of method

To determine the objectivity or subjectivity of a claim, the efficiency or perfection of a mechanism, we do not look for their intrinsic qualities but at all the transformations they undergo later in the hands of others.

How does this relate to I&E?

Black Swans

- “The Black Swan” N. N. Taleb 2007
- Large scale, unexpected events
- Cause: the world became too complex to understand
- Improperly managing black swans causes potentially catastrophic results

Black Swans - The name

- Say you always observed white swans and made the inductive generalization that all swans are white…
- What happens if you observe a black swan?

Options

1. A black swan is not a swan
2. We are observing an outlier
3. Our definition is wrong..?

“Mediocristan” vs “Extremistan”

Mediocristan

- Normally distributed
- Good for “natural” parameters
- High predictability
- Uncertainty-based
- All swans are white

Extremistan

- Peaked distributions
- Good for “artificial” phenomena
- Low predictability
- Ambiguity-based
- Black swans can exist

The fallacy of induction

- Hasty inductive generalization might lead to false conclusions
- Russell’s Chicken

Example of black swans

Brexit, Trump… Others?

How does this relate to I&E?