Uncertainty of a third kind – dealing with ambiguous issues and diverging frames

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Different natures of uncertainty (Dewulf et al. 2005)

- Unpredictability (ontological uncertainty)
  - the inherent unpredictable and chaotic nature of certain phenomena
  - characteristic of the 'state-of-the-world'
  - ranges from completely deterministic to completely chaotic
- Incomplete knowledge (epistemic uncertainty)
  - lack of knowledge about a phenomenon
  - characteristic of the human 'state-of-mind'
  - ranges from perfect knowledge to total ignorance
- Ambiguity
  - simultaneous presence of multiple frames
  - related to context uncertainty (Walker et al. 2003) – "defining the boundaries of the system and the framing of issues"
  - related to conceptual uncertainty (Pahl-Wost et al. 1988) – "about which conceptual frame to apply to understand the phenomenon"
  - characteristic of the 'state-of-society'
  - ranges from unanimous clarity to total confusion

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Uncertainty matrix (Kwakkel et al. 2010)

Table 5: Synthesized Uncertainty Matrix

Location		Level				Nature		
		Level 1: Shallow uncertainty	Level 2: Medium uncertainty	Level 3: Deep uncertainty	Level 4: Recognized Ignorance	Ambiguity	Epistemology	Ontology
System boundary								
Conceptual Model								
Computer Model	Model structure							
	Parameters inside the model							
	Input parameters to the model							
Input Data								
Model Implementation								
Processed Output Data								

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Ambiguity or Multiple Problem Frames

- The problem is: what is the problem?
  - Problems = desired situation – current situation
  - Problem = construction of a gap
- Frames of reference
  - selective representation of reality
  - mix of facts, interests, norms and values
  - serves as orientation points and filters
- Multiple problem frames
  - Between persons and groups
  - At different points in time
- Determine the scope within which solutions are sought

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Case example: Guadiana river

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Example: Guadiana case

- "insufficient supply" vs. "excessive consumption" water issue
  - "insufficient supply": agriculture needs water, farmers have a right to pump, water transfer to another province aggravates the problem
  - "excessive consumption": valuable wetland is disturbed by farming, EU policies favor unsuitable crops, farmers extract water illegally, lack of law enforcement

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Issue framing

Framing as assembling issue elements into meaningful constellations through the following processes:

- **Selecting.** People can differ in the way they draw boundaries around an issue by including or excluding certain issue elements. (BOUNDARIES)
- **Focussing.** People can differ in the issue element(s) they put into the focus of attention. (PRIORITY)
- **Embedding.** People can differ in which issue elements they use as encompassing and which they use as constituent elements. (OVERARCHING).

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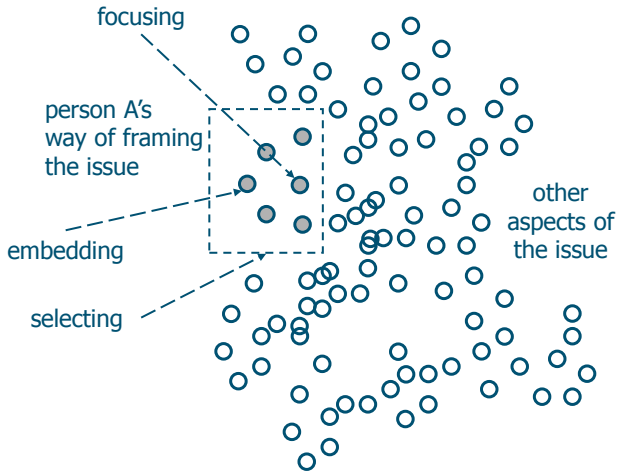

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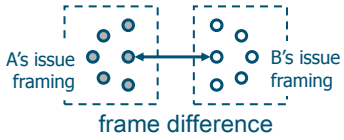
Frame difference



Ambiguity

multiple valid views or frames

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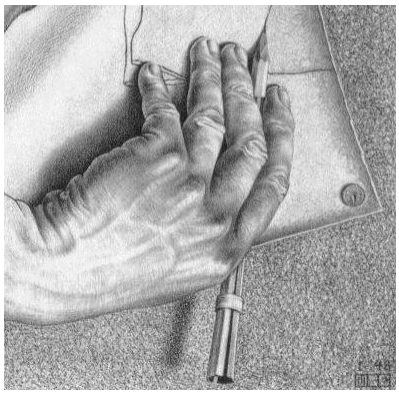

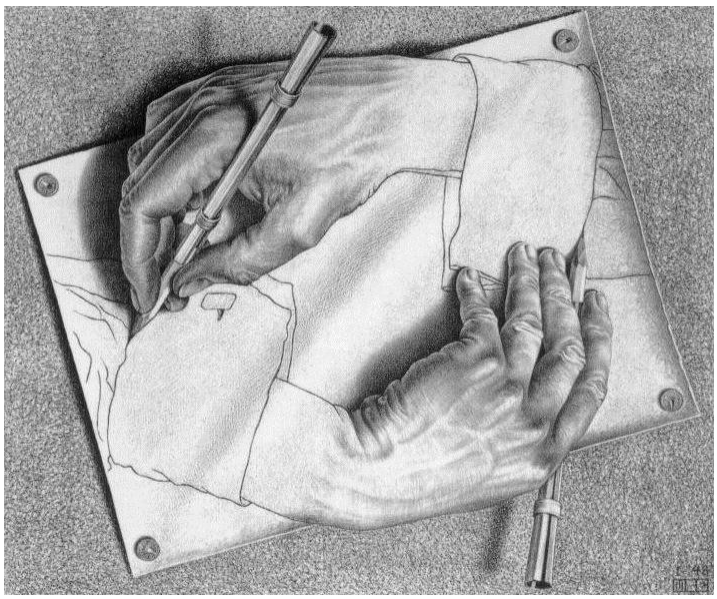

Ambiguity (Dewulf et al. 2005)

- "The problem is that there are too many meanings, not too few. The problem is confusion, not ignorance." (Weick, 1995)
- Decision-making in conditions of uncertainty and ambiguity implies a shift from solving clearly delineated problems to continuous negotiating and tuning between different actors, expertise domains and decision centres.

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Dealing with ambiguity (Brugnach et al. 2011)

Table 1
Strategies' major characteristics.

Strategy	Assumptions	Copes with ambiguity …
Rational Problem Solving	There is one correct frame about the situation	By invoking a scientific frame as the most important
Persuasive Communication	There is one frame which makes the best story	By convincing others of the meaningfulness of one particular frame of reference
Dialogical Learning	Willingness to question and to listen	By engaging all actors in an interactive process of mutual understanding and the creation of shared or connected frames
Negotiations	Willingness to negotiate	By reaching an agreement that is meaningful from different frames
Oppositional Modes of Action	Our frames can be imposed on the others or we can ignore their frames	It imposes a particular frame through power strategies

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- Isendahl, N., Dewulf, A., Brugnach, M., François, G., Möllenkamp, S., & Pahl-Wostl, C. (2009). Assessing framing of uncertainties in water management practice. Water Resources Management, 23(15), 3191-3205.
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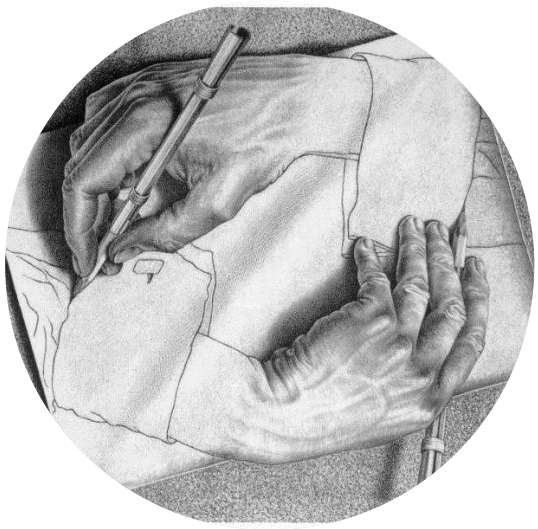
Thanks

Questions?



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