

Choices and rationalities under radical uncertainty:
Ideals and principles
behind responses to risks and risk information

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Central research questions and issues

- The notions

(1) **“irrational”** risk perceptions and behaviors **can be bad** for health

(2) **risk-increasing responses** to risk information and to “nudges” need to be identified and **corrected** before they do too much damage

- Implying also: rationality and harm are non-ambiguously definable

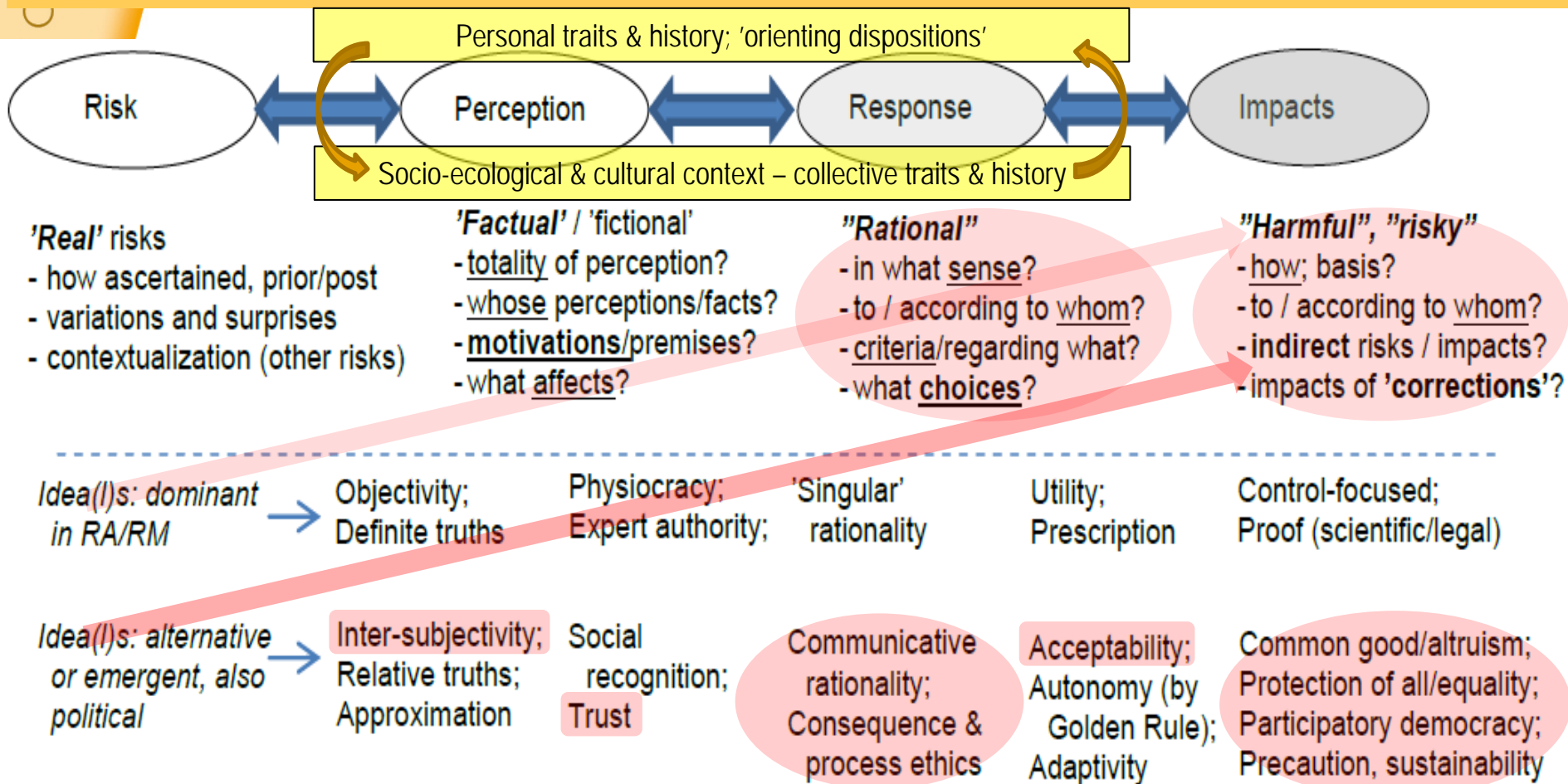
- Need to be critically scrutinized

- Need to be put in relation to epistemic and political principles

- Complexity, ambiguity, indeterminacy, 'radical uncertainty' around risks and responses pose new challenges

- Exploratory, conceptual and 'discourse analytical' scoping work

From risks to perceptions to responses: Idea(I)s of rationality and harmless impacts



'Real' risks

- how ascertained, prior/post
- variations and surprises
- contextualization (other risks)

'Factual' / 'fictional'

- totality of perception?
- whose perceptions/facts?
- motivations/premises?
- what affects?

"Rational"

- in what sense?
- to / according to whom?
- criteria/regarding what?
- what choices?

"Harmful", "risky"

- how; basis?
- to / according to whom?
- indirect risks / impacts?
- impacts of 'corrections'?

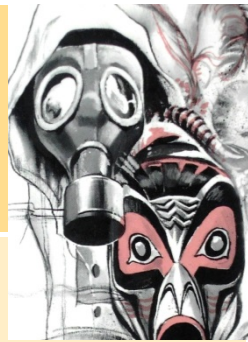
- **Ideas** are consolidated into **normative ideals and principles** about risk in **multi-dimensional, multi-factorial** political and socio-cultural processes
- **Risks** are also about **choices and values**, not '*Dinge an sich*'

Summary evaluations of two cases

Case	Character of Risks, Benefits	Types and contexts of harm or fear	Framings of rationality of choice	Key idea(l)s and principles
Seafood dioxins/ POPs vs. PUFAs (Baltic Sea)	-Manmade inadvertent Rs <(<) 'natural' Bs - Cardiovasc/dev (carc) -R/B varies by group - Health, ecol, soc R, B of food/fisheries	-Expo. peak in 1970's ; lagged R; 'past-bias' -Concern prompted by EU food/feed dioxins - People alerted switch to worse diets?	-To eat or not -Optimizing R/B – 'rational no-regret'? - Rational steering? (regs/information/econ) -Lessons ex-post	-Voluntary or normative RM: right to choose diet vs. imperative to protect - Subsidiarity vs. uniformity - Equity : R/B to whom (age) - Necessity of choice : Avoid Rs, secure Bs by PUFA pills?
Pharma -crops (GM plants)	- Manmade Rs, Bs largely unknown -Health, ecol, soc throughout life-cycle - Vary by group , exposed/beneficiaries	-Concerns fueled by field trials (containment) - Global food/drug policies & politics	-To plant-pharm or not; ' Rs & Bs of doubt ' - Comparability w/ other GM (plants) -Inclusion of pol/econ	- ' GM Golem '; endorsing / questioning tech on principle -Improving health gains and growth (=?) Equity ; R/B to whom

- In both, disputes are about **the rationality and ethics of choices** (of consumers & society)
- **Many other** principles are relevant (liberty/accountability; transparency; prudence/precaution)
- **Pharmacrops** involve more **multiactor tensions** (not just official) and turbulence

How are "potentially harmful behaviors" born, and what are they like?



Multiple **factors**

- Risk-related, personal, contextual (SE, politics, media, culture, e.g. nanny/welfare)
- Constitutive and sudden/transient (e.g., flying-aversion post-9/11)
- Apparently irrational/harmful behaviors have **non-apparent/surprising reasons**

Complex dynamic processes accompany behavioral responses

- Hard to know what goes on in people's minds, why – and what may follow
- Hard to control – and judge

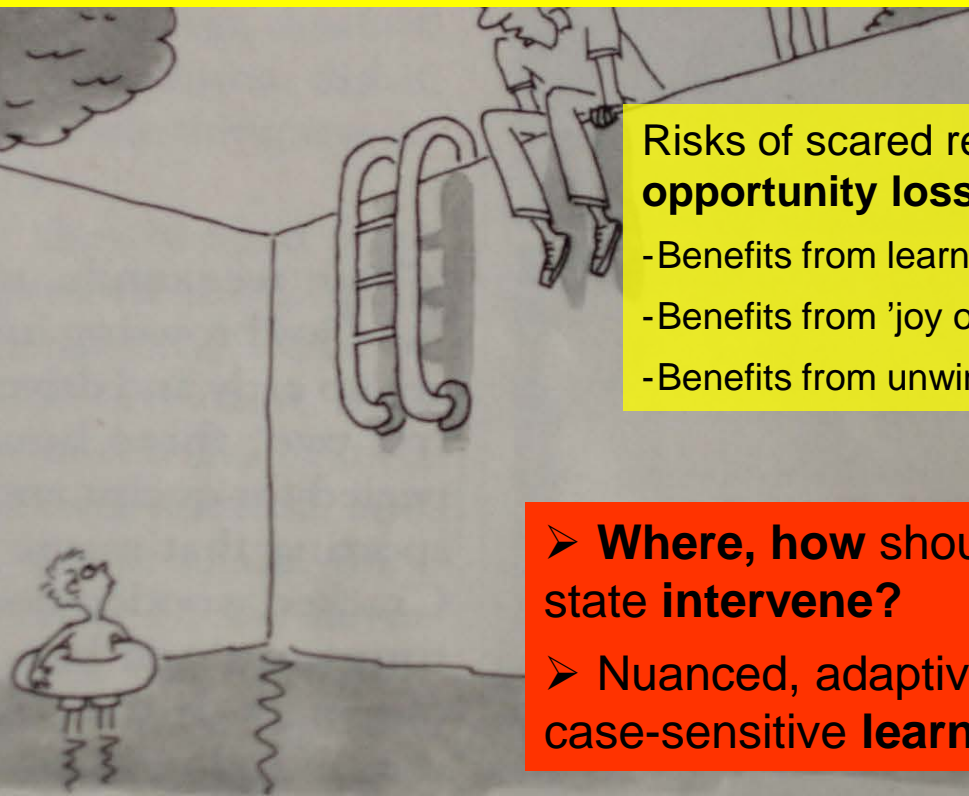
Multiple **attributes**

- Worry/anxiety, action, inaction; "paranoia & neglect" – among all
- Economic (e.g., gambling/hoarding), other (conflict/alienat.); manifest & 'silent'
- **"Harmful behavior"?** E.g., something that somehow increases someone's R_i (upper bound or expected value) without causing some offsetting benefit

- Yet, **no uniform, clearcut interpretation** and explanation of irrational and harmful

Risks and benefits of responses to risks – intertwined, multi-faceted, case-sensitive

- It's **easy to ridicule** 'irrational', harmful risk aversion of people or the state, **generalizing**
- There **may be 'rational' reasons** for precaution (e.g., feelings of safety, caring, mourning), **depending** on risk, those taking it (whom does it 'harm'?), circumstances, purposes (why risk)
- Also precaution may have benefits, e.g., by unwinding 'splurge craze' or speculative risk-taking



Risks of scared responses to risks involve **opportunity loss**, e.g. of

- Benefits from learning (trial-and-error)
- Benefits from 'joy of living'
- Benefits from unwinding 'security craze'

➤ **Where, how** should people and the state **intervene?**

➤ Nuanced, adaptive, individual- and case-sensitive **learning processes**

"Better safe than sorry, son."

How can “potentially harmful behaviors” be discouraged?

Many ways & strategies depending on risk, actors, setting (individual/policy level):

- ❖ Taking people and their concerns *'seriously'* (cf. Witteman et al: Value clarification)
- ❖ Nudging to **empower**; not patronizing
- ❖ Entering open deliberation, **dialogue** (cf. Lee et al: Enhancing behavior); fears as signals
- ❖ **'Old'** solutions: Therapy 'listening'; shared decisions (cf. Bansback et al.); education
- ❖ **'New'** solutions, for all “harmful responses” (even responses meant to correct others)
 - **Dispel illusions** of strict rationality and control; **admit limitations**
 - **Flexible framing**; R/B to individuals/peoples/; aversion to bear costs; choice universe
- + **Beware of new harms/risks** from extremes (in heated, polarized processes)
 - **Abandoning formal analysis/prioritization**, out of absolute individualism
 - **Participatory democracy is not a panacea**; e.g., lobbies may blur decision-making

= Individual/collective; general/specific; preventive/curative; res/pol; firm/loose

➤ **Experimenting** but building in **safeguards**; **'muddling through'**

Typology of approaches: Navigating 'Scylla & Charybdis' of positivism and relativism (cf. Jasanoff, 1993)

Level	Positivist takes	Relativist takes	Intermediate / combined
Perception	<ul style="list-style-type: none"> - Risk is 'body count' (R_p) or other definite entity - Objective scientific truths - Facts \neq values - Fixed, definable criteria on 'right' perceptions 	<ul style="list-style-type: none"> - Risks are cultural, subjective constructs - Emotions are valid - No fact-value distinction - Any perception is equally right 	<ul style="list-style-type: none"> - No perception is irrational if it regards R_i within reasonable bounds of true R_i - Personal valuation of outcome matters - No clear fact-value divide - Cultural, contingent cognition of risk
Behavioral response	<ul style="list-style-type: none"> - Focus on rationality - Instruction by experts - Prescriptive steering 	<ul style="list-style-type: none"> - Focus on interpretation - Intuitive, improvised free voices - Autonomy in justifying R claims 	<ul style="list-style-type: none"> - Focus on understanding behaviors - Education, social learning and support - Dialogue and participation
Policy response	<ul style="list-style-type: none"> - Evidence-based - Social engineering - Comprehensive plans - Quant BCA/behaviorism 	<ul style="list-style-type: none"> - Radical precaution, proactivity - Anarchy/autonomy - Organic development - "Tyranny of econometrics" 	<ul style="list-style-type: none"> - Structured, 'epistemic' precaution - Adaptive governance, flexibility - Incremental planning, experimentation - (Behav) econ useful if linked/renewed

Methodological insights and suggestions

- Narrower (better specified) definition of “**irrational** response”, e.g. identifying those irrational to all (+arguments for such evaluations)
 - Beware of absolute definitions of what is “against interest”
 - Regard evaluations as tentative and subject to deliberation
- Broader (better specified) definition of **what ‘people’ respond to**
 - Consider the kinds of risks, their contexts, and their choices
 - Pay attention to indirect benefits & social functions
- Acknowledge that individual risks are both **uncertain and variable**
 - Identify and characterize particular risk groups (and beneficiary groups)
 - Elicit individual views; combine persuasive and prescriptive influence
- Relax overly normative quasi-objective definitions of harmful response - while utilizing sci, analysis, experience (despite analyst limits & biases)
- Unpack values, idea(l)s, principles; study the socio-political processes (including political principles and considering behavior of all actors)

= Extended, non-deterministic (behav) sci; cf. 'affective turn'

= **Reflective** approaches to **reduce confusion and illusory clarity**

Conclusions and recommendations



- Needs for many-sided, reflective analyses and policies
- Refocus
 - from agents **to outcomes, processes & contexts**, also of interventions
 - from **collective to individual & back**, balancing interests
 - from **positivism to relativism & back**, making the best of both
 - from **judging 'lay foibles'**, to **understanding & engaging** with **all** people
 - **from 'irrationality hunting'** to questioning concepts and values
- Resist 'sirens of definiteness'; go for 'sphinxes of **plurality**'
 - embrace also polarities and disputes as opportunities to clarify issues/options
- **Social learning** to cope with risks, develop benefits, co-construct knowledge
- **Explicate ideals and principles** to make sense of risks & responses



"There's nothing bad but thinking makes it so" – Shakespeare (bad paraphrase)

"Precisely precaution requires, unfortunately rather often, the endangerment of life." - Kafka, *The Nest*

"... to become objective I must remain subjective." - Calvino, *t zero*

"Knowing is not enough; we must apply. Willing is not enough; we must do." - Goethe



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 - all those who have influenced our thoughts on risks, in writing or in person
 - the audience!
- The views presented are our own ...
 - ... we'd like develop them, with other views!
 - So let's hear yours!

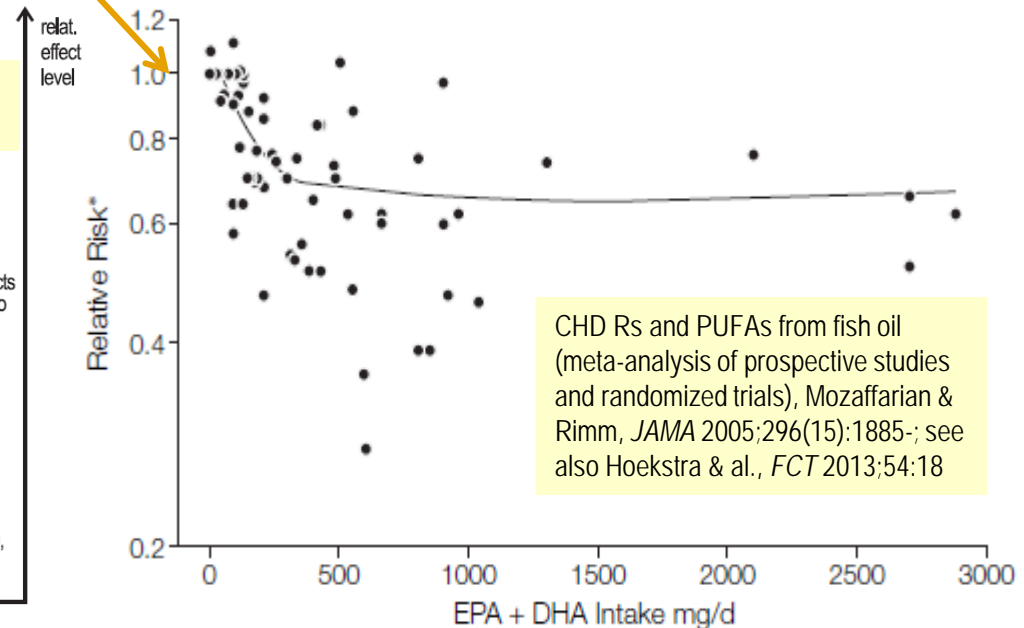
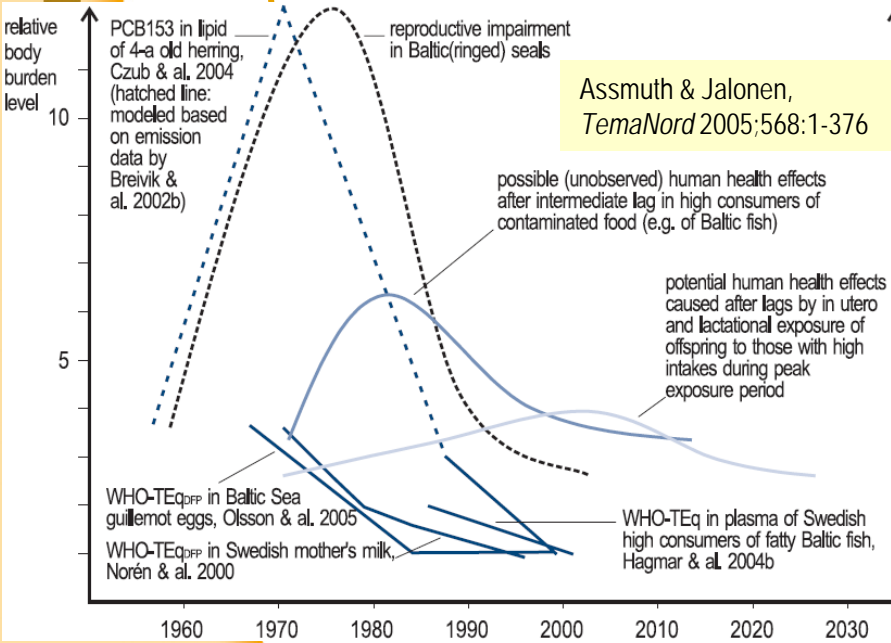
A matrix for initial evaluation of the 'irrationality' of responses to risks

<i>Response</i>	<i>Immediate consequences</i>	<i>Indirect consequences</i>	<i>Modifying considerations</i>
Response taken	Reducing the risk responded to?	Increasing another risk (countervailing) - to oneself (voluntarily/not) - to another (liability/blame)	- Type of risk - Those under risk - Risk reduction options; social cost - Setting (e.g., law, geopolitics)
Alter-native response	- Reducing risk more (easily) than alternative responses do? - Increasing adjacent benefits?	- As above, plus: - Gaining another important salutary effect? - Increasing adjacent benefits , e.g. adherence to <i>norms</i> , social <i>cohesion</i> , <i>coping</i> ability, <i>awareness-raising</i> (note feed-back to perception)?	- As above, plus: - Avoidability/reducibility of R with no imaginable countervailing R - Absolute principles (e.g., legal) justifying reducing smaller risks - Risk commensurability - Information aspects

- Other consequences/considerations of risks and options to be included?

Health R/B of fatty Baltic fish consumption

- **DLCs** to fish as **inadvertent reaction products** of Cl-chemicals
- **Slashed exposures** for key toxics in fish & consumers
- **Food dioxin scandals** prompted regulations on strict food/feed limits
- **Other means of RM**: Diet advice, emission reduction
- **B's from fish (PUFAs) likely >> R's (CV)**; for **some not** (Hoekstra et al. 2013 meta-anal w/ UA)
- **Other supplies of PUFAs** don't fully replace B's of (local) fatty fish
- **Consumers** already switched to Norse salmon etc alternative diets
- +for ocean fish (tuna etc), add protein-bound MeHg in the equation



Baltic fish R/B: The role of ideal(I)s and principles in perceptions & responses

Issues

- **Framing** R's: with *B's*; in *time/space*; *qualities*; *countervailing R*; *SE* aspects
- **Weighting** effects: CV mortality/dev tox 'premium', DALYs; perinatal
- **Right to choose** (diet) vs. **prescription** (those unable to choose)
- **No-regret**: Avoid (toxic) R's while securing (PUFA) B's - 'pill' option
- Appropriate **information** (consumer *scares/advice*; uncertain R/B of choices)
- **Subsidiarity vs. uniform rules**: *Natl derogations* from EU dioxin directives

Solutions

- Multi-frontier RM: prevent & cure; instruments; collective & individual choices)
- Targeted diet advice to key groups; balanced messages & R communication
- Coordination of levels of governance and sectors/interests
- Attention to why people relate to R's and B's and U's as they do
- Confusion and conflict resolution through knowledge brokering

R/B of intentional agents: Pharmacrops (GM plants encoding drugs, Plant-Made Pharmaceuticals)

Premises

- Altering properties and impacts of plants in some radical ways
- US and new economies lead, EU follows suit in more cautious approach
- Risks along product life-cycles, still largely unknown; contesting information
- Comparability with natural analogs is uncertain

Issues

- **'Risks of risk perception'**: Social unrest, loss of benefits,
- ... and **risks of lacking risk perception** (lacking foresight, controls)
- Conflicts of beneficiaries/victims, farmers/firms/consumers, GM pro/opponents ..
- Perceptions **depend also on world-views**: Tech/soc utopias & dystopias

Solutions

- **More inclusive deliberation, transparent & independent RA**
- **Inherently safer** tech (e.g. sterile) & appl (greenhouse, non-food plants)
- Fears and hopes of actors may **converge to some consensus**
- **Trust in the fairness** of the process is key (R/B distribution)

Case: Energy/Fracking - Broader risks

FRACK FOR FREEDOM



'Green', 'red' or 'brown' revolution?

THE SHALE GAS REVOLUTION

An optimistic narrative (Forbes 3 5 2014)

It is in Russia's interest to keep Europe hooked on gas at prices just low enough to quash incentives to drill and frack. Russia's propaganda has disseminated articles critical of fracking and supported its opponents. After Janukovich Putin has taken Crimea as a hostage to hold against what Ukraine owes Russia for gas. Putin's actions underscore the **threat that shale gas does pose to Russia's** gas-fueled diplomacy.

Any alternative to dependence on Russian gas/oil is welcome not just directly for health / env but also for liberty from threats to autonomy ('lesser evil')

More balanced view: There are **risks with fracking of many kinds**, due also to **indirect impacts**, including risks to health, well-being and **rights of communities** (with some differing interests); there are **also promises** (e.g. of political and systemic benefits) to offset vicious circles of fossil addiction; these are to be sorted out by broader, independent, balanced analyses also of politics and principles involved; it is **neither the absolute savior nor the demon** it is made to appear.

Methodologically, BCA and **quantitation breaks down**: how do you value / discount the independence of a state, the human losses in a global war or economic meltdown? Does it make sense to estimate 'rational regrets' (Cox)? It's **chiefly about qualitative aspects, process dynamics**, political will, societal choices - and **policy analysis** ¹⁶

Ideas and principles: Definitions, types

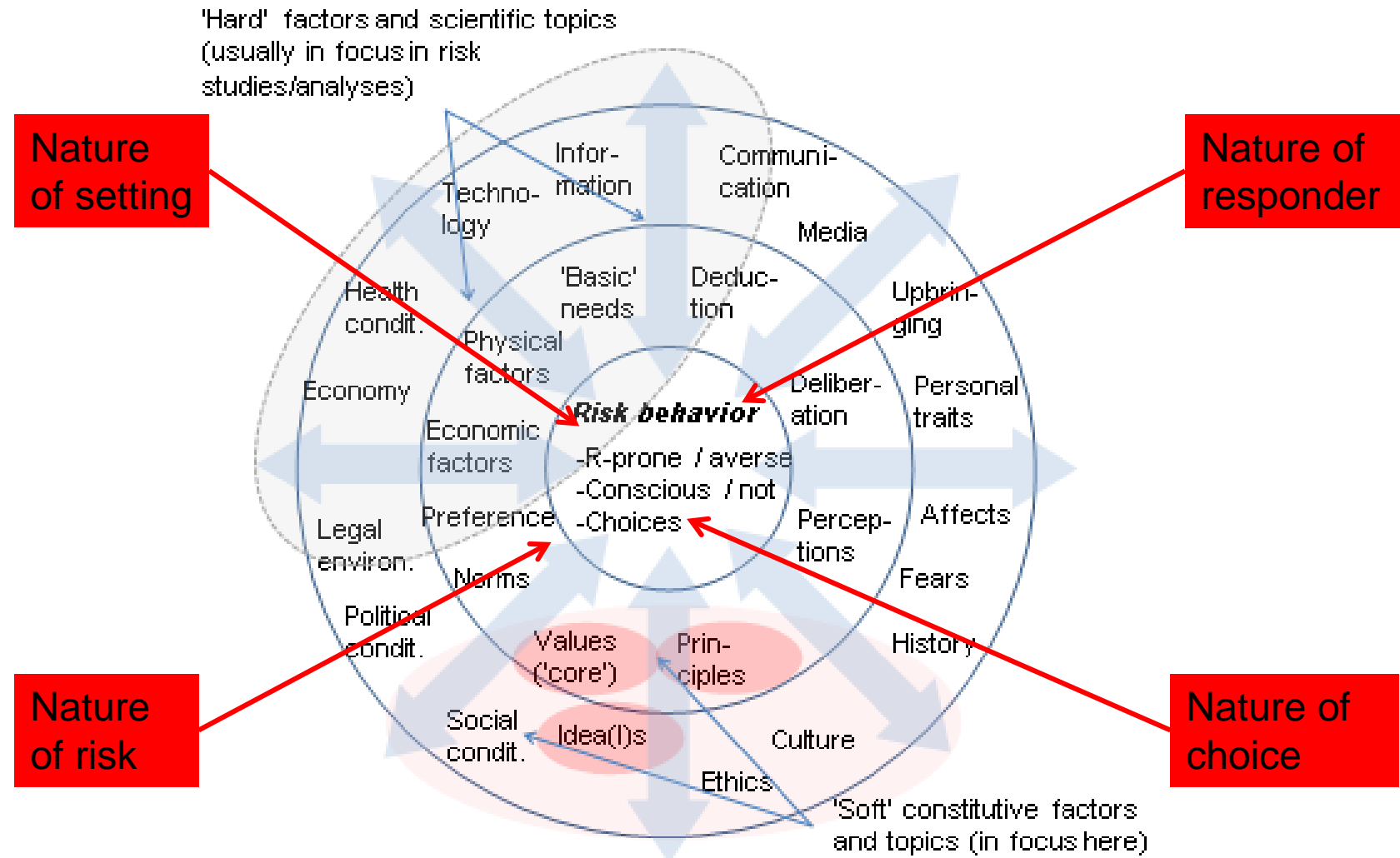
'Firm-
ness'

- Idea**
1. Thought of possible course; mental impression; **opinion/belief**
 2. Aim or **purpose**
 3. *Eternal pattern* of which individual things are imperfect copies (Plato) / concept of *pure reason* not empirically based (Kant)
- Ideal**
1. Conception of a thing in its perfection; ...
 3. Ultimate object of endeavor; **goal**;
 4. Honorable or **worthy principle** or aim.
- Prin-
ciple**
- 1a) **Fundamental truth/proposition**, basis for a system; 1b) **Rule/belief governing behaviour**, 1c. **Morally correct** behaviour and attitudes
 2. **General sci. theorem/law** with many applications; 3. Fundamental source

- Epistemic** and **political**
- Core/auxiliary, constitutive/secondary**
- Normative** (even legal) and **non-normative**
- Generic** and (risk) **specific**

Spare

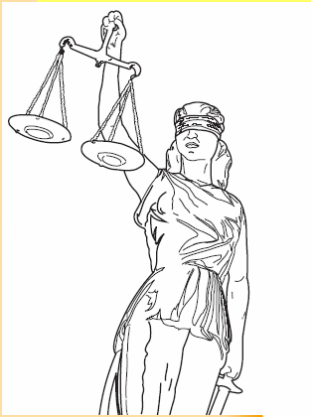
Influences, factors, contexts of risk(y) responses



Concentric levels from broad/indirect to specific/direct influences;
Societal and personal factors, constitutive and transient

Precaution - and Experimentation, for Learning: Ideals of "truthfulness" and "prudence"

- **Not often unpacked** (relations with other principles and ideals)
- E.g., policies, decisions, actions under (radical) **uncertainty**: 'blind justice' of randomness – and structural determinants
- Balancing **precaution and evidence**
- **Learning from harmful behavior** (of self/others/society)
- With a **solution focus**: steering on interim results and iteration (**adaptive** governance)
- Links with traditional notions and approaches, e.g. prevention



Culturally conditioned risk perceptions and responses: EU and US (cf. cases)

- EU Non-federal, non-firm, politically varied and **ambiguous structure**
Emphasis on **collective agency**
In some areas more precautionary, not uniformly
- US Constitutional principles and legal interpretation
Emphasis on **individual agency** (rights, liability/responsibility)
'Frontier culture': risk-taking, but also risk-conscious

- Convergence and divergence (e.g., emphasis on economy)
- In both regions, some risks are **culturally amplified**
- Political principles and gov modes shape response strategies (e.g., regarding individual responsibility and regulation)
- **Efficiency and politics** mix (in US, openly polarized/partisan)
- Principles of regimes are **provisional**, reflections of deeper ideas
- Cf. **other cultures** (also minorities e.g. in US/EU, including aboriginal etc)

Polarized Ideas

- Competing, conflicting (yet complementary) ideas
- **Radicalism vs. conservatism**: multiple forms/shades
 - E.g., revising revisionists (Finkel) – but also staunch alarmists
- Environmental/health **pessimism vs. optimism**: doubting risk claims and dismissals, as well as solution claims and dismissals
- Exaggerated **relativism** ('people's risk perceptions are always valid and calls for action') vs. expertocratic **positivism** ('they are irrational and to be dismissed or corrected') (Cf. Fischhoff: "lay foibles and expert fables")
 - middle way(s) call for immersion in group psychodynamics
 - Cf. proverb: it's harder to come up with prognosis than diagnosis, harder still with therapy, hardest to get it accepted
- These navigations call for **dialogue and interaction**, e.g., joint fact finding and joint issue-framing and interpretation ...
- ... while making use of **time-honored principles** (e.g., skepticism)

Pitfalls of irrationality-hunting, many often ignored

There is a natural, healthy impulse to criticize and correct irrationality, **but**:

- The “people” with “wrong” fears and ideas are in fact heterogeneous
- Those worried about risky responses are part of the people, and have biases (cf. Kahnemann & Tversky; Fischhoff)
- Irrationality is claimed by proponents as well as opponents of tech/solutions
- Some fears of people are justified in unforeseen ways (cf. Mazur)
- “Irrational” fears are understandable in the face of complexity and insecurity; they may also express other concerns, giving **valuable signals**
- Concern and criticism is a foundation of pluralist open society, and a **’power check’**
- **’Irrationality-bashing’ may be part of “harmful responses”** (pontification etc)

❖ “You don’t understand the risk properly” begs the response: “to me the risk is part of the choice I have, which you don’t understand properly”

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