

科学哲学特殊講義シラバス

Special Lecture in Philosophy and History of Science

Lecturer: Tetsuji Iseda (tiseda@bun.kyoto-u.ac.jp)

Office Hour: Wed, 15:00-16:30 (Office: Bunkei-kyodo Kan Room 503)

Overview

The notion of risk is central to the relationship between science and society. There are various approaches on this issue, such as STS, psychology, philosophy and ethics. In this lecture, we investigate philosophical issues of risk, using insights from the other fields. Even though the larger part of the lectures is delivered in Japanese, some lectures will be in English. Students are expected to do readings and take part in classroom discussions.

Required Background

No background is required, but if you are not familiar with philosophy of science in general, please read some introductory book by yourself. Okasha's introductory book (邦訳 オカーシャ 『科学哲学』) is recommended.

Textbook and other readings

K.S. Shrader-Frechette (1991) *Risk and Rationality*. University of California Press.

The book is out of print. Photocopies of the book and all other readings will be provided in the class.

Sven Ove Hansson (2007) "Risk" in *Stanford Encyclopedia of Philosophy*
<http://plato.stanford.edu/entries/risk/>

Chauncy Starr and Chris Whipple (1980) "Risks of risk decisions" *Science* 208, pp.1114-1119.

Chris Whipple (1989) "Non pessimistic risk assessment and de Minimis risk as risk management tools" in D. Paustenbach (ed.) *The Risk Assessment of Environmental Hazards* (Wiley), pp. 1105-1120.

Mary Douglas and Aaron Wildavsky (1980) "risk is a collective construct," conclusion of *Risk and Culture* (University of California Press), pp. 186-198.

Deborah G. Mayo (1991) "sociological versus metascientific views of risk assessment" in

D. G. Mayo and R.D. Hollander eds. *Acceptable Evidence: Science and Values in Risk Management*. Oxford University Press, pp. 249-279.

Deborah G. Mayo and Aris Spanos (2006) "Philosophical scrutiny of evidence of risks: from bioethics to bioevidence" *Philosophy of Science* 73, pp.803-816.

Paul Slovic (2000) "Introduction and overview" in *Perception of Risk* (Earthscan, 2000) pp. xxi-xxxvii

Paul Slovic (1987) "Perception of risk" *Science* 236, pp. 280-285. reprinted in *Perception of Risk* (Earthscan, 2000) pp. 220-231.

Ulrick Beck (1992) "On the logic of wealth distribution and risk distribution," ch. 1 of *Risk Society* (translated by Mark Ritter, Sage. German edition published in 1986)

Scott Campbell and Greg Currie (2006) "Against Beck: in defense of risk analysis" *Philosophy of Social Sciences* 36, pp.149-172.

Bucchi and Neresini (2007) "Science and Public Participation" in E.J. Hackett et al. eds. *The Handbook of Science and Technology Studies* 3rd edition (MIT Press), pp. 449-472.

How is the course organized?

Participants are expected to read the assigned readings before the class, so that they can take part in the discussion. Summary of the readings will be given in the lecture, but the lecture itself will be organized around the topic of the day.

For Japanese with little experience with English environment

The amount of reading may seem overwhelming. If you are not accustomed to read that much English, just do your best. The class is bilingual, so you may ask questions in Japanese even when the lecturer is speaking English.

For non-Japanese speakers

The handouts will be made bilingual, but I think Japanese classes are hard to follow for those students who do not understand Japanese. In that case, I do not expect those students to take part in the Japanese part of the classes. In each English lecture, I will give a little bit of summary of the previous lecture at the beginning, giving the minimal continuity to the class. Also, all the readings are English, so as long as the non-Japanese speakers do all the readings, they will get the main content of the class.

This is an experiment for the lecturer, so suggestions for improving the bilingualism are welcome.

Paper project and the final paper

Participants who seek to obtain credits from this class need to write a final paper and a mid-term paper project. The topic is an application of the philosophical analyses of risk to a certain concrete case in which risk analysis and risk evaluation is involved. The paper can be either Japanese or English. I encourage Japanese students to write in English. If you are not sure about the quality of your English, English speaking participants may be available to help you.

(1) mid-term paper project

At the mid term (June 9th, to be exact) you are asked to submit a proposal for final paper. The proposal should include:

- short description of the case you want to write about
- tentative ideas on how to analyze the case
- list of the books and articles you are going to use in the final paper

(2) final paper

in English: about 4000 words

in Japanese: about 10000characters

The instructor will give feedbacks to the paper project. The final paper should reflect the instructor's comments.

Schedule ("RR"= *Risk and Rationality*)

4/14 Lecture in both Japanese and English

授業の概要 (outline of the course)

リスクの概念 (The concept of risk)

なぜリスクは哲学の問題になるか(why risk is a problem for philosophy)

Reading: Hansson "Risk"

4/21 日本語の講義

リスクの概念つづき (the concept of risk, continued)

シュレーダー=フレchetteの立場 (the position of Schrader-Frechette)

Reading: RR ch. 1

4/28 Lecture in English

"positivist" views of risk

Readings: Starr and Whipple "Risks of risk decisions"

Whipple "Non-pessimistic risk assessment and de minimis risk as risk management tools"

5/12 日本語の講義

リスクの社会構成主義 (social constructivism on risk)

reading: Douglas and Wildavsky, *Risk and Culture*, conclusion.

5/19 Lecture in English

The middle way: Schrader-Frechette and Mayo

presentation by Jorge Gomez

Readings: RR ch. 3

Mayo "Sociological vs metascientific views of risk assessment"

Mayo and Spanos "Philosophical Scrutiny of Evidence of Risks"

5/26 休講予定

6/2 日本語の講義

リスク認知とリスクコミュニケーション(risk recognition and risk communication) (1)

readings: RR ch.2

Slovic "introduction and overview"

Slovic "perception of risk"

6/9 Lecture in English

risk recognition and risk communication (2)

presentation by Adrien Barton

readings: same as the previous week

paper project due

6/16 日本語の講義

schemes of risk evaluation (1) Expert judgment

Reading : RR chs. 6 &7

6/23 Lecture in English

schemes of risk evaluation (2) Utilitarianism

Reading : RR ch. 8

6/30 日本語の講義

schemes of risk evaluation (3) Democracy

Reading : RR ch. 11

7/7 Lecture in English

Beck's idea of risk society

Readings: Beck, "On the logic of wealth distribution and risk distribution"

Campbell and Currie, "Against Beck: in defense of risk analysis"

7/14 日本語の講義

リスクに関する意思決定の手法 (the method of decision-making on risk)

reading: Bucchi and Neresini "Science and Public Participation"

7/21 休講予定

7/28 final paper due

リスクの概念 The concept of risk

1 リスクの五つの定義 five definitions of risk (Hansson 2007)

- (1) 起きるかもしれないし起きないかもしれない望ましくない出来事 unwanted event which may or may not occur
- (2) 起きるかもしれないし起きないかもしれない望ましくない出来事の原因 the cause of unwanted event which may or may not occur
- (3) 起きるかもしれないし起きないかもしれない望ましくない出来事確率 the probability of unwanted event which may or may not occur
- (4) 起きるかもしれないし起きないかもしれない望ましくない出来事の統計的期待値 the statistical expected value of unwanted event which may or may not occur
- (5) 既知の確率の下で決定がなされたという事実 the fact that a decision is made under conditions of known probability

(4)について

ここでいう期待値(expectation value)とは、あるハザードのおきる確率×望ましくなさの度合い。リスク学ではこの定義が採用され、アカデミックな議論全般でも使われることが多い。

(「期待値」そのものは統計学一般で使われる概念。たとえばさいころをふったときの目の大きさの期待値は

$$1 \times 1/6 + 2 \times 1/6 + 3 \times 1/6 + 4 \times 1/6 + 5 \times 1/6 + 6 \times 1/6 = 21/6 = 3.5)$$

(5)について

既知の確率と未知の確率を区別する際に、前者をリスク、後者を不確実性(uncertainty)と呼ぶことがある。

ハンソンはリスクを(4)だけで狭く定義することを批判している。

2 リスク評価をめぐる様々な言葉 (expressions related to risk evaluation)

人によってかなり用語法にばらつきがある。ここではシュレーダー=フレチェットの用語を主に使うが、他の著者の文章を読むときはどれが何にあたるか気をつけること (RR, p.5)

ハザード hazard --- リスクを引き起こすもの (上の定義 2 のリスクにあたる) something that causes a risk (def. 2 of risk above refers to hazard in this sense)

リスク同定 risk identification --- なんらかのハザードが存在することを同定すること (identification of the existence of hazard)

リスク見積もり risk estimation --- そのハザードにまつわる害のレベルや可能性を見積もること (estimation of the level and probability of the harm related to the hazard)

リスク評価 risk evaluation --- その危険性が他のハザードにくらべて受容可能なものかどうかを判断すること (evaluation of the acceptability of the danger relative to other hazards)

リスク管理 risk management --- リスクの処理に関する政策決定 (policy making on the management of the risk)

このほか、risk analysis「リスク分析」や risk assessment リスク評価という言葉も使われる。シュレーダー=フレチェットの言う risk estimation や risk evaluation の意味でも使われるし、リスク同定からリスク評価までの全体をさす言葉として使われることもある。

リスク認知 risk recognition, risk perception --- 人々がリスクをどのように認識するか。特に心理学的な研究で用いられる (how people recognize or perceive the risk; used in psychological research)

リスクコミュニケーション risk communication --- リスクについての情報の伝達・共有

3 リスクと諸分野の関わり (the relationship between risk and disciplines)

3-1 認識論とリスク epistemology and risk (Hanson section 2)

認識論 epistemology --- 「知識とは何か」を扱う哲学の一分野

リスクについての認識論的問題

リスクの下での知識と不確実性の下での知識は認識論的に本当に違うのか

リスクの定義に登場する確率は主観的確率なのか客観的確率なのか

3-2 科学哲学とリスク philosophy of science and risk

リスクの値を決定する正しい方法論とは何か、その方法論はどう正当化されるか
スタンダードな方法論で得られたリスクについての知識は客観的なものとみなされるべきか

通常の統計的方法における判断基準は適切か (I 型錯誤と II 型錯誤)

3-3 リスクと倫理学 (risk and ethics)

倫理学 (ethics) --- 「なにをなすべきか」についての哲学的考察など

代表的理論

功利主義(utilitarianism) 関係者の幸福を最大化するような行為が最善の行為 the best action is the one that maximize the happiness of the affected parties.

義務論 (deontology) 義務にかなった行為が正しい行為 the right action is the one that is in accordance with duty.

契約説 (contract theory) 正しい社会的なルールとはある種の理想的な状況で契約者たちが取り決めるであろうようなルール the right social rules are those which would be chosen by contractors in a certain ideal situation.

代表的な理論はリスクについてのわれわれの直観的な判断と一致するか。(ハンソンの指摘する exemption problem)

3-4 リスクと科学技術社会論 (risk and science, technology and society)

科学技術社会論(science, technology and society STS)

科学技術と社会の影響関係や、よりよい関係を築くための方法論について研究する領域。

もともと大学の科目だったが社会学の一分野としての science and technology studies と融合するなどして一つの学問分野に成長。

リスクについての社会的な意思決定はどのようになされるべきか

リスクコミュニケーションはどのようになされるべきか

→認識論や倫理学の問題と密接に関連

Communication Sheet 1 (philosophy of risk)

affiliation (所属)

grade (学年)

name (名前)

1 Why do you take this class? この授業を選択した理由は？

2 How fluent are you in Japanese? 英語はどのくらいできますか？

3 How familiar are you with philosophy of science and STS? 科学哲学と STS についてはどのくらい知っていますか？ (科哲史専修学生は前者は答える必要なし)

philosophy of science ---

STS (science, technology and society) ---

4 Any questions, comments or requests on the class? この授業について質問、コメント、要望などはありますか？