

# Základy filozofie

věda a společnost

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# HODNOTY

# vymezení

## Co je to *hodnota*?

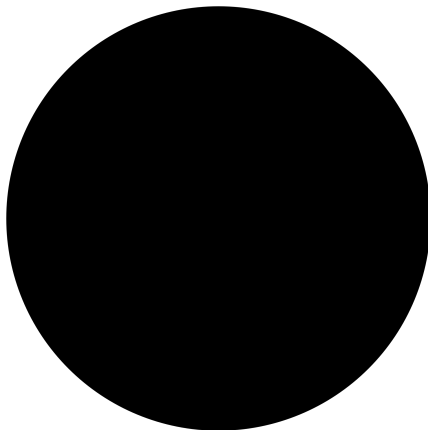
- to, co je důležité v životě
- peněžní hodnota
- užitečnost
- ...
  
- žádoucí nebo nežádoucí
  - motiv pro jednání a hodnocení jednání

# charakteristiky

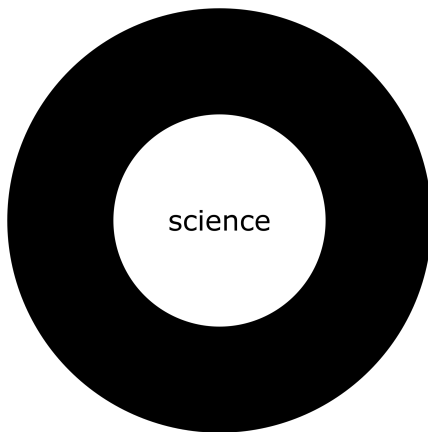
- pozitivní / negativní
- absolutní / relativní
- přímé / nepřímé
- terminální / instrumentální
- podle zdroje nebo oblasti

# oblasti

# oblasti

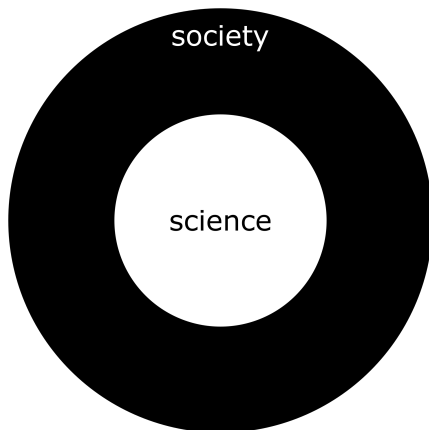


# oblasti

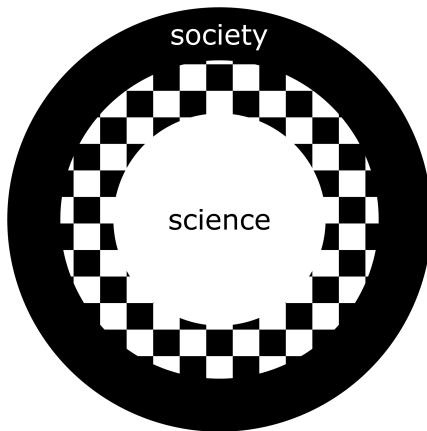




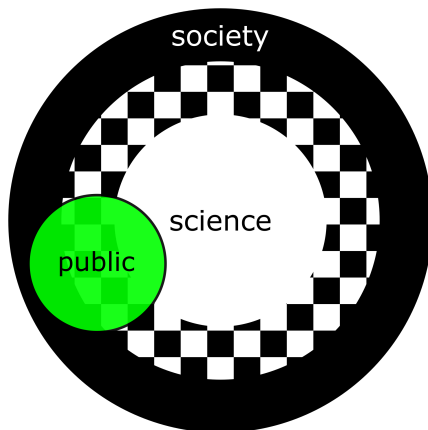
# oblasti



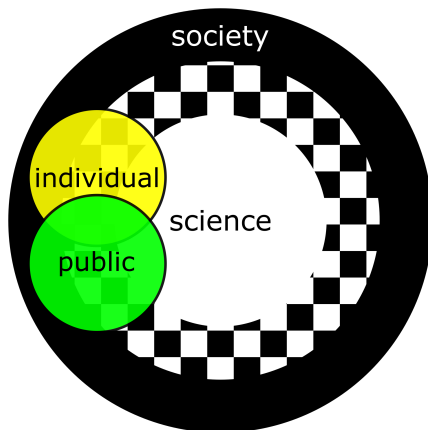
# oblasti



# oblasti



# oblasti



# HODNOTY VE VĚDĚ

**typy**

# typy hodnot ve vědě

(Lacey, 1999; Reiss & Sprenger, 2017)

- kontextuální
  - morální, osobní, sociální, společenské, politické a kulturní hodnoty  
(potěšení, spravedlnost, rovnost, ochrana přírody a její diverzity)
- epistémické
  - prediktivní přesnost, zacílení, jednotnost, explanační síla, jednoduchost a koherence
- non-kognitivní
- kognitivní
  - nestrannost
  - neutralita
  - autonomie

# tři pozice



# hodnoty a věda

(Reiss & Sprenger, 2017)

## ideál svobody na hodnotách (Value-Free Ideal, VFI)

Vědci by se měli snažit minimalizovat vliv kontextuálních hodnot na vědecké usuzování, tj. na shromažďování důkazů a hodnocení nebo přijímání teorií.

# values and science

(Reiss & Sprenger, 2017)

## teze o hodnotové neutralitě (Value-Neutrality Thesis, VNT)

Alespoň v principu jsou vědci schopni shromažďovat důkazy a hodnotit nebo přijímat teorie bez činění kontextuálních hodnotových soudů.

## values and science

(Reiss & Sprenger, 2017)

teze o hodnotové zatíženosti (Value-Laden Thesis, VLT)

Vědci nemohou shromažďovat důkazy a hodnotit nebo přijímat teorie bez činění kontextuálních hodnotových soudů.

# hodnoty ve vědě

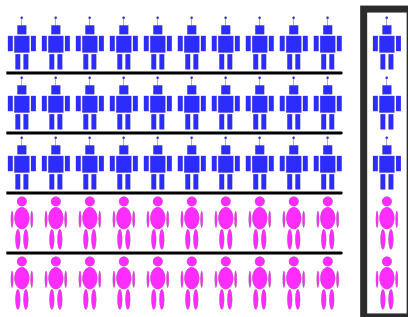
- problémy
- metody
- důkazy, evidence
- teorie
- aplikace

# ilustrace

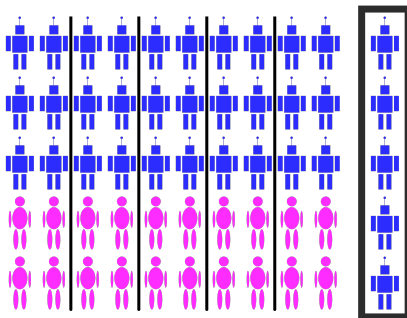
# gerrymandering



# gerrymandering

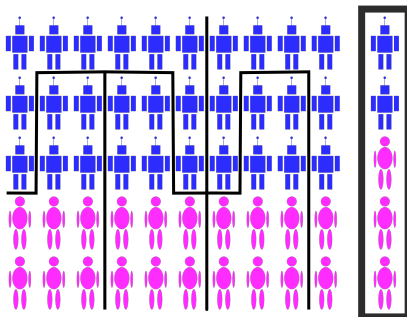


# gerrymandering





# gerrymandering



# doktrinální paradox

(Kornhauser & Sager, 2004; Krajňanský, 2014)

	$T$	$K$	$T \wedge K \rightarrow S$	$S$
soudce	vzal	věděl	(vzal & věděl) tedy ukradl	ukradl

# doktrinální paradox

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soudce 1	Ano	Ano	Ne	Ne

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soudce	vzal	věděl	(vzal & věděl) tedy ukradl	ukradl
soudce 1	Ano	Ano	Ne	Ne
soudce 2	Ano	Ne	Ano	Ne

# doktrinální paradox

(Kornhauser & Sager, 2004; Krajňanský, 2014)

	$T$	$K$	$T \wedge K \rightarrow S$	$S$
soudce	vzal	věděl	(vzal & věděl) tedy ukradl	ukradl
soudce 1	Ano	Ano	Ne	Ne
soudce 2	Ano	Ne	Ano	Ne
soudce 3	Ne	Ano	Ano	Ne

# doktrinální paradox

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soudce	vzal	věděl	(vzal & věděl) tedy ukradl	ukradl
soudce 1	Ano	Ano	Ne	Ne
soudce 2	Ano	Ne	Ano	Ne
soudce 3	Ne	Ano	Ano	Ne
všichni soudci	Ano	Ano	Ano	

# doktrinální paradox

(Kornhauser & Sager, 2004; Krajňanský, 2014)

	$T$	$K$	$T \wedge K \rightarrow S$	$S$
soudce	vzal	věděl	(vzal & věděl) tedy ukradl	ukradl
soudce 1	Ano	Ano	Ne	Ne
soudce 2	Ano	Ne	Ano	Ne
soudce 3	Ne	Ano	Ano	Ne
všichni soudci	Ano	Ano	Ano	Ne Ano

# hodnoty a koncepty

- normalita
  - gender
- problémy teorií
  - evoluční teorie
  - inteligentní design
  - teorie ploché/duté/statické země
- dostatečný důkaz
- ...



# PŘÍKLADY HODNOT

# aktuální hodnoty ve vědě

# Mertoniánské normy

(Merton, 1973: 270–278)

- univerzalismus
  - equality, truth, openness
- “komunismus”
  - sharing
- nezainteresovanost
  - evaluation
- organizovaný skepticism
  - doubts

# další možné hodnoty

(Resnik, 2005: 48–61)

- čestnost
- opatrnost
- otevřenost
- svoboda
- uznání
- vzdělání
- společenská odpovědnost
- legálnost
- příležitost
- vzájemný respekt
- efektivnost
- respekt k subjektům výzkumu

# příklady hodnot ve vědě

# čestnost

## Research Misconducts

(NSF 45 CFR Part 689)

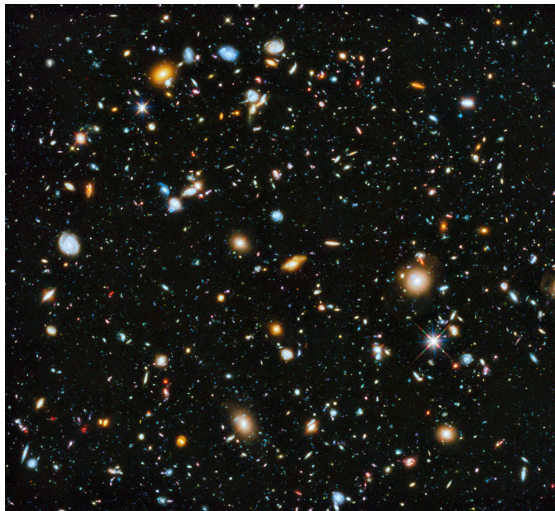
- plagiátorství
  - “means the appropriation of another person’s ideas, processes, results or words without giving appropriate credit”
- fabrikace
  - “means making up data or results and recording or reporting them”
- falšování (falsification)
  - “means manipulating research materials, equipment, or processes, or changing or omitting data or results such that the research is not accurately represented in the research record”

# opatrnost

- chyby
- Čavojová, Šrol, and Adamus (2018):  
My point is valid, yours is not: myside bias in reasoning about abortion

# otevřenost

(NASA/ESA, 2014)





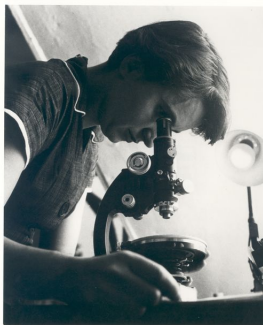
# svoboda

(Ridley, 1998: 258)

Thus spake Lenin. The 1920s and 1930s, often seen as a time of lunatic obsession with genetic determinism, was also a time of lunatic obsession with environmental determinism: the belief that man could be remade entirely into new man just by education, propaganda and force. Under Stalin this Lockean faith in changing nature was even applied to wheat. Trofim Lysenko argued, and those who gainsaid him were shot, that wheat could be made more frost-hardy not by selection but by experience. Millions died hungry to prove him wrong.

# uznání

(Glynn, 1955)



# příklady

# společenská odpovědnost

- Wakefield
- science march

# legálnost

- Subsequent Nuremberg Trials: Doctors' trial
- Tokyo Trials
- pharmaceutical studies

# příležitost

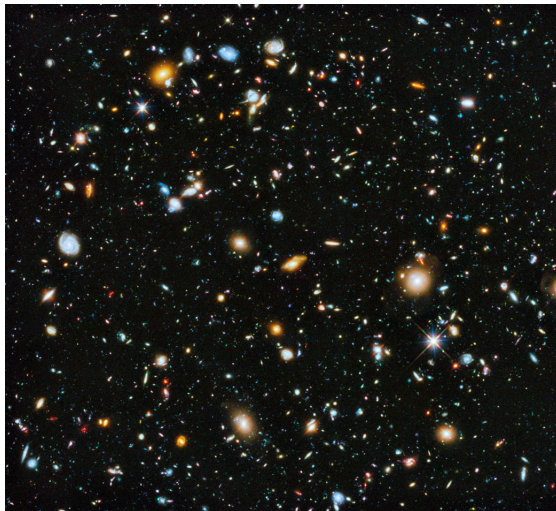
- equality of resources division

# vzájemný respekt

- Wundt
- fabric of science

# efektivnost

(NASA/ESA, 2014)





# respekt pro subjekty výzkumu

- Subsequent Nuremberg Trials: Doctors' trial
- Tokyo Trials
- Little Albert experiment
- Tuskegee syphilis study (experiment)
- ...

# VĚDA A SPOLEČNOST

# problematika

- limitované zdroje
- Co by mělo být podpořeno?
- Jak lze rozhodovat?

# příklady problémů

- primární & aplikovaný výzkum
- tlustá kůže vědců
- rozum & emoce

# spravedlivé rozdělení zdravotní péče

## Just Distribution of Health Care

(Battin, 1987)

If societal resources are insufficient to provide all the health care all persons in all medical conditions need, some sort of limiting distributive practice will of necessity emerge.

- spravedlivé rozdělení
- závoj nevědomosti

# ZDŮVODNĚNÍ

# spravedlnost

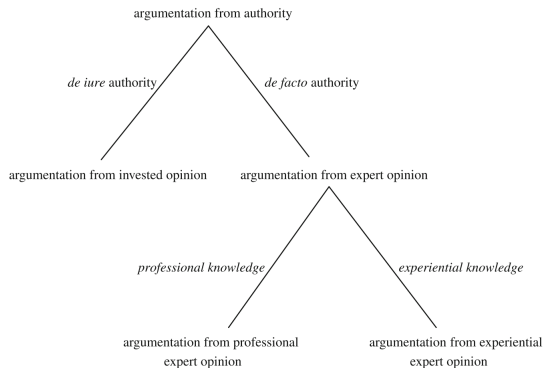
# problémy

- rozhodování
- expertní názor
- důkaz a dokazování



# expertní názor

(Wagemans, 2011: 333)



**Fig. 1** Different types of argumentation from authority

# důkaz a dokazování

- fingerprints – dactyloscopy
  - 1858 – Sir William Herschel
- lying detectors – polygraph
  - 1921 – Augustus Larson
- DNA – DNA profiling
  - 1984 – Sir Alec Jeffreys
- ...

# důkaz a dokazování: problémy

- omyly
  - individuální/systematické
  - záměrné/čestné/zanedbání
- show
  - nerealistická očekávání
- ...

# prohřešky

(Henry, 2019)

- Sgt. Marc W. Dennis
  - New Jersey State Police's Drug and Alcohol Testing Unit, 2008–2016
  - tests to confirm the accuracy of the Alcotest machinery
  - more than 20,000 breath samples are in question
- Nika Larsen
  - Oregon, 2013–2015
  - altered drug evidence, stole controlled substances
  - requiring review of more than 2,500 cases
- Annie Dookhan
  - Massachusetts, a forensic lab scientist, 2003–2012
  - falsified drug tests in nearly 24,000 cases
  - 11,000 convictions were dismissed
- ...

# politika/akce/plánování

# problémy

- omezená znalost
- Jak máme rozhodovat?
- Na základě čeho máme rozhodovat?

# nejistota

- van Asselt and Voss (2006: 315–316): Uncertain Risks  
[Uncertain risks] are not, or at least not fully, calculable and controllable, because the probability of occurrence or the effect in terms of damage cannot be estimated, and even the potential danger and the relevant causalities may not be established, although there are suspicions of danger.
- Uncertainty  
Uncertainty towards some fact or group of facts *A* means that it is not possible to say that this fact or group of facts are acceptable or unacceptable accordingly to the accepted group of facts *B*.

# kontext

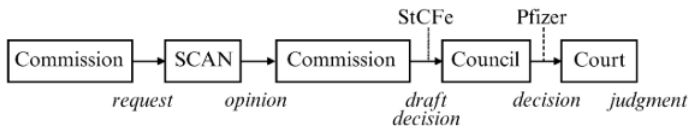
- tři hlavní podmínky
  - nálehavost zdůvodněného rozhodnutí
  - nedostatek jiných prostředků nebo cest (nejistota)
  - akceptace jiného rámce pro zdůvodnění
- příklady užití:
  - soudy
  - normotvorný proces
  - ...



# The Pfizer Animal Health Case I/IV

(CFI, 2002; Forrester & Hanekamp<sup>1</sup>, 2006; RC, 1998; van Asselt & Voss, 2006)

- 1998–2002
- the prohibition of the use of certain antibiotics as growth promoters



**Figure 1.** Outline of the actual course of the regulatory process in the Pfizer case

- Commission: European Commission
- SCAN: Scientific Committee on Animal Nutrition
- StCFe: Standing Committee on Feeding-stuffs
- Council: Council of Ministers
- Court: European Court of First Instance

# The Pfizer Animal Health Case II/IV

(CFI, 2002; Forrester & Hanekamp<sup>1</sup>, 2006; RC, 1998; van Asselt & Voss, 2006)

- urge:  
some decision has to be made
- uncertain risk:  
lack of information if there is any risk for public health
- precautionary principle:  
if there are no other sources for justification of decision

# The Pfizer Animal Health Case III/IV

(CFI, 2002; Forrester & Hanekamp<sup>1</sup>, 2006; RC, 1998; van Asselt & Voss, 2006)

- 1 The use of certain antibiotics as growth promoters should be prohibited.
  - 1.1 We should not use substances with unknown impacts on human consumers.
    - 1.1.1 Precautionary Principle.
  - ? We do not know the impact of certain antibiotics as growth promoters on the human consumers.

## The Pfizer Animal Health Case IV/IV

- a. Is it desirable to weakening the position of the consumer?
- b. Will the use of certain antibiotics as growth promoters leads to weakening the position of the consumer?
- c. Is it not necessary to break some other principles or rules or to introduce some other stuff to weakening the position of the consumer?
- d. Does the use of certain antibiotics as growth promoters have some positive effects?
- e. Can we prevent the weakening of consumer position by some other means?

# EXPERTI

# VZDĚLÁNÍ

# problémy

- Co by se mělo učit?
- Kdo a by měl učit a kdo by se měl učit?
- Jak by měl vypadat systém učení?

## co: příklad

(Haack, 2011; Hull, 1999; Numbers, 1982; Overton, 1982)

- The Scopes Trial
- McLean vs. Arkansas Board of Education
- Segraves vs. California



# kdy & kdo

(Gould, 1996)

- When should kids go to school?
- Who is eligible?
- ...

# jak

- metody
- technologie
- ...

# jak: příklad

(Francis, 2018; Sans Forgetica, n.d.)



Sans Forgetica

# zdravotní péče

# problémy

- Co by mělo být adekvátní zdravotní péčí?
- Kdo by měl rozhodovat o zdravotní péči?
- Kdo by měl být odpovědný za zdravotní péči?

# příklady

- experimental treatment
- treatment of children
- suicide / assisted suicide / euthanasia / self-harming

# VEŘEJNÝ OBRAZ VĚDY

# vědecký žurnalismus



# žurnalismus

(Brumfiel, 2009; Rensberger, 2009; Rödder, Franzen, & Weingart, 2011; Vestergård, 2016)

- a decreasing number of scientific journalists
- new trends

# problémy chybné reprezentace

(Wells, 1894: 301)

The fundamental principles of construction that underlie such stories as Poe's "Murders in the Rue Morgue," or Conan Doyle's "Sherlock Holmes" series, are precisely those that should guide a scientific writer.

# přizpůsobení se publiku/čtenáři/příjemci

(Borel, 2015; Brumfiel, 2009; Bucchi & Trench, 2014; Rensberger, 2009; Rödder et al., 2011; Vestergård, 2016)

- volba tématu a nástrojů
  - současné
  - osobní
  - příběhy, hrdinové a jejich boj
  - zjednodušení

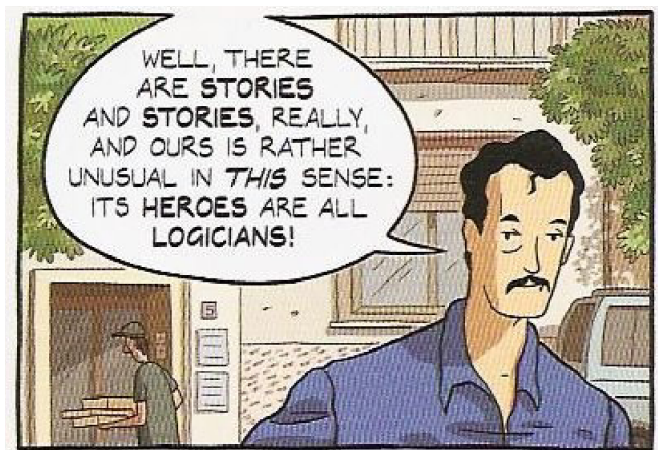
# rámování

(DeGregori, 2003)

- autisms

# hrdinové

(Doxiadis & Papadimitriou, 2015)



# kontroverze

(Ceccarelli, 2011: 196)

A scientific controversy is “manufactured” in the public sphere when an arguer announces that there is an ongoing debate in the technical sphere about a matter for which there is actually an overwhelming scientific consensus. The manufactured scientific controversy can be seen as a special type “public scientific controversy” in which “strategically distorted communication” works to corrode democratic process.

# COI a lhaní

(Borel, 2015)

- William Laurence

William Laurence, a New York Times science reporter who was also on the US government's payroll to write about the Manhattan Project. Laurence wrote positive accounts of the atomic bomb as a reporter as well as press releases for the government, and he called Japan's reports of radiation sickness "propaganda". For these efforts, he won a Pulitzer in 1946.

# věda pomocí novin

(Forum, 2018; Steckles & Lawson-Perfect, 2018)

**Heidelberg Laureate Forum** @HLForum Stedovat

Is Sir Michael Atiyah giving lecture on Monday Sept. 25 @ #HLF18? Yes. Will he presenting a proof of the Riemann Hypothesis? Yes, that is what his abstract says.



0:04 · 20. 9. 2018

1 554 retweetů 1 872 lajků

83 1,6 tis. 1,9 tis.

**Heidelberg Laureate Forum** @HLForum · 20. 9.  
Dear #math fans and twitterverse, we are going to try this without typos - Yes, Sir Michael Atiyah giving lecture on Monday Sept. 24 @ #HLF18. And yes, according to his abstract, he will present a proof of the Riemann hypothesis.

16 351 522



# věda pomocí novin

(Resnik, 2005; Wakefield et al., 1998)

- cold fusion
- autism and vaccination
- human cloning
- ...

# další problémy

- rozlišení
- reklamy

# rozlišení



# reklamy

- food
- tobacco
- sport
- equipment

## příklad

© 1957 American Tobacco Company. All rights reserved. No part of this advertisement may be reproduced without the written consent of the American Tobacco Company.

20,679\* Physicians  
say "LUCKIES  
are *less irritating*"

"It's toasted"  
Your Throat Protection against irritation against cough

Lucky Strike (2017)

# PATERNALISMUS

# otázka

Měla by být hloupost chráněna?

# paternalismus

(Dworkin, 2017)

Paternalism is the interference of a state or an individual with another person, against their will, and defended or motivated by a claim that the person interfered with will be better off or protected from harm.



# příklady

(Dworkin, 2017)

- laws requiring motorcyclists to wear safety helmets
- laws regulating sexual conduct
- laws forbidding people from swimming at a public beach when lifeguards are absent
- laws compelling people to save a fraction of their income for retirement
  
- illegality of selling one's vote
- impossibility of withholding critical treatment for children
- voting mechanisms
- ...

# libertarianismus – nudges

(Sunstein, 2014: 1)

nudges – liberty-preserving approaches that steer people in particular directions, but that also allow them to go their own way

# příklady I/II

(Leonard, 2008; Sunstein, 2014)

- default rules (e.g., automatic enrollment in programs, including education, health, savings)
- simplification (in part to promote take-up of existing programs)
- uses of social norms (emphasizing what most people do, e.g., “most people plan to vote” or “most people pay their taxes on time” or “nine out of ten hotel guests reuse their towels”)
- increases in ease and convenience (e.g., making low-cost options or healthy foods visible)
- disclosure (for example, the economic or environmental costs associated with energy use, or the full cost of certain credit cards – or large amounts of data, as in the cases of data.gov and the Open Government Partnership, see [opengovernmentpartnership.org](http://opengovernmentpartnership.org))

## příklady II/II

(Leonard, 2008; Sunstein, 2014)

- warnings, graphic or otherwise (as for cigarettes)
- precommitment strategies (by which people commit to a certain course of action)
- reminders (for example, by email or text message, as for overdue bills and coming obligations or appointments)
- eliciting implementation intentions (“do you plan to vote?”)
- informing people of the nature and consequences of their own past choices (“smart disclosure” in the US and the “midata project” in the UK)

# reminder

(Weingart et al., 1999)

The demand for knowledge  
to solve scientific/technical(instrumental)  
and/or obtain support for preconceived decisions (legitimizing)  
ultimately leads to the inflationary use of expertise and,  
as it pushes to the realm of yet uncertain knowledge,  
to controversy (politicisation of science).

# ZDROJE I

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