

Complexity & Uncertainty in a Risk Averse Society

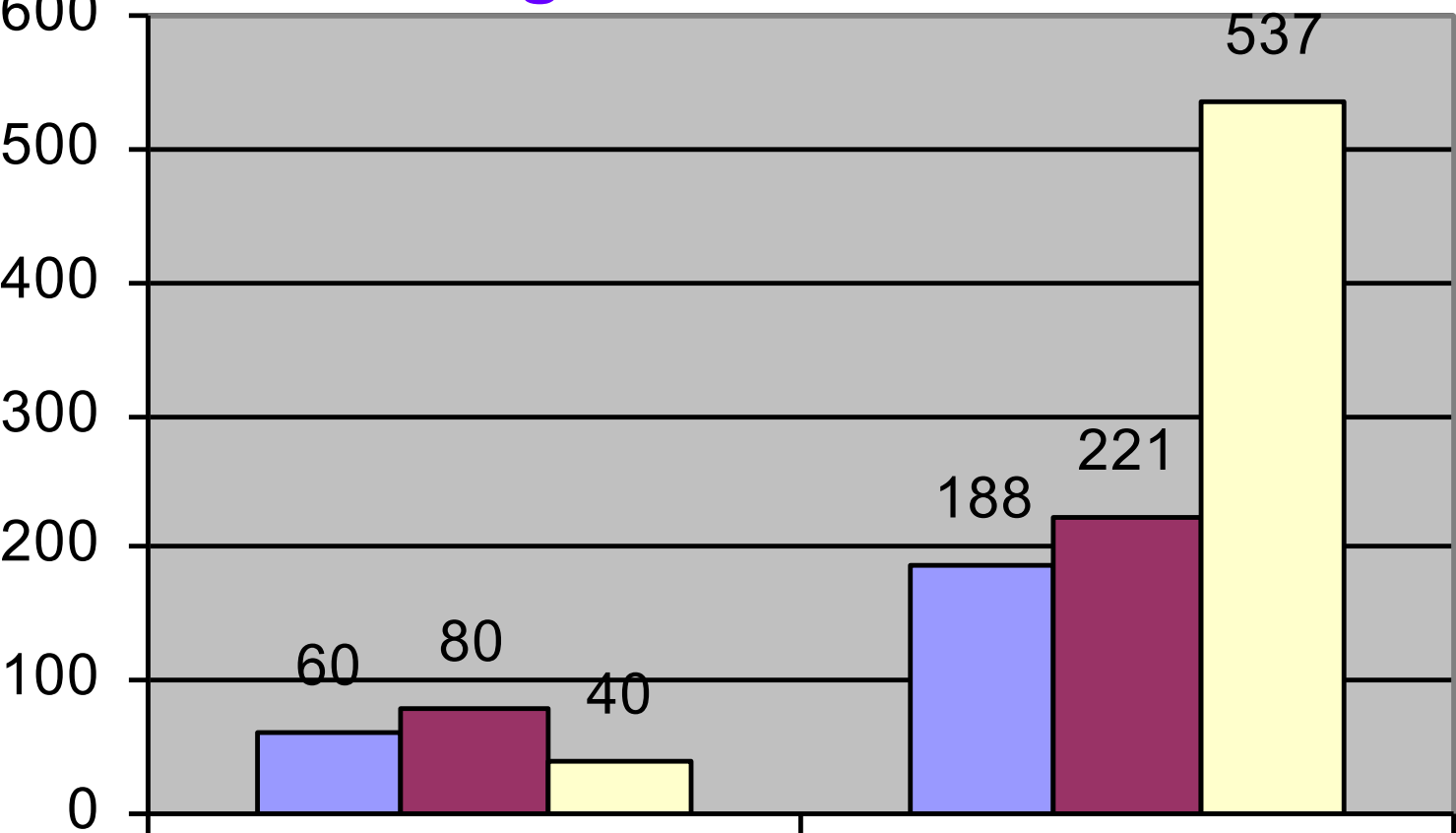
Three Framing Devices for Thinking about Risk

Omega Centre Conference
Planning and Decision-making amidst
Complexity, Risk & Uncertainty

22 January 2007

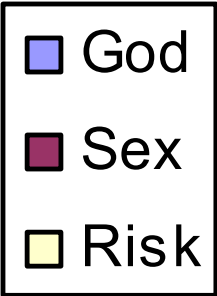
www.John-Adams.co.uk

Google Hits - millions



May 2004

Sept 2005



Different kinds of Risk: 1

e.g. cholera: need a microscope to see it and a scientific training to understand

Terrorism

Events dear boy!

The legal environment

Scientists don't know cannot e.g. BSE/vCJD, global

Coca Cola

Perceived direction

Belgian chocolates

Virtual risk

warming, low-level radiation, residues, mobile phones,

Contact lenses

e.g. climbing a tree, riding a bike, driving, car

Sunbathing

passive smoking, stock market



© 2001 The New Yorker Collection from cartoonbank.com. All Rights Reserved.

The New Yorker March 21, 1988

A successful risk manager



Risk management is

- a balancing act
- instinctive
- intuitive
- influenced by experience
- modified by culture

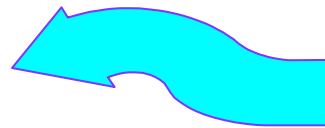
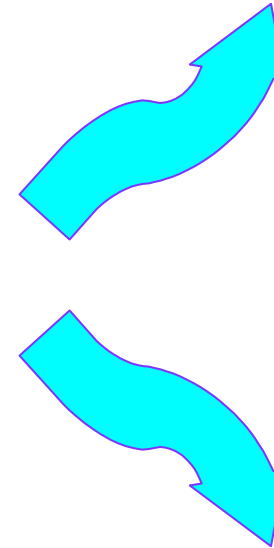
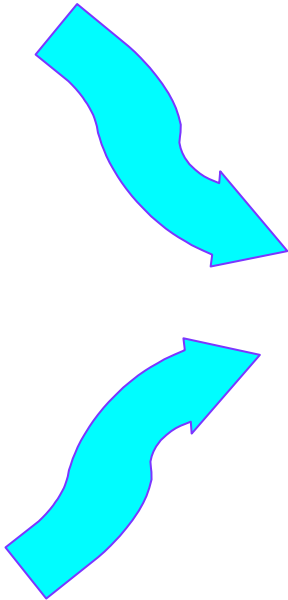
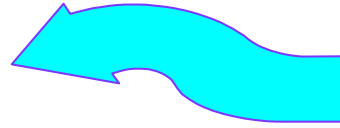
**Propensity to
take risks**

Rewards

**Balancing
behaviour**

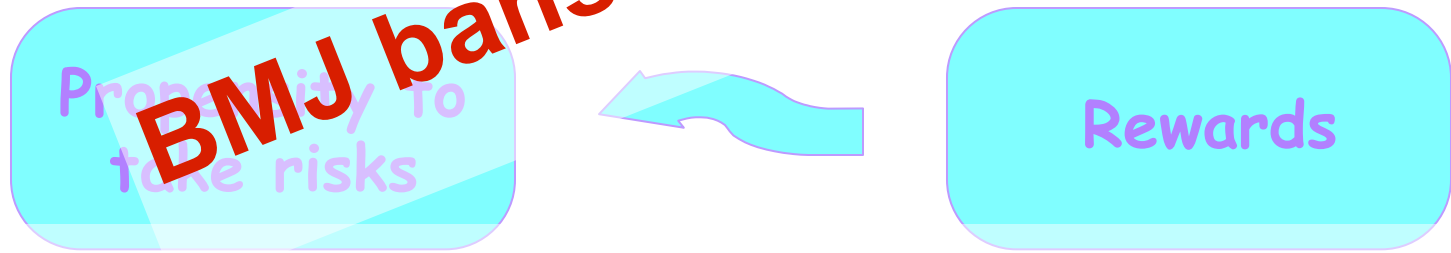
**Perception
of risks**

Accidents

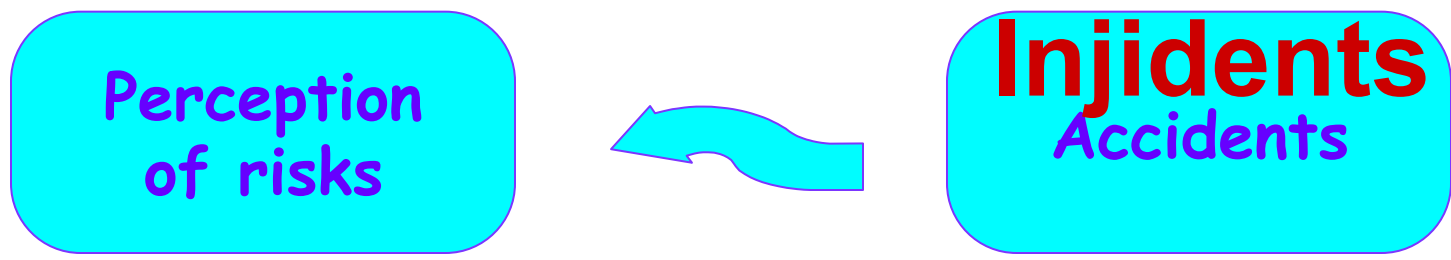
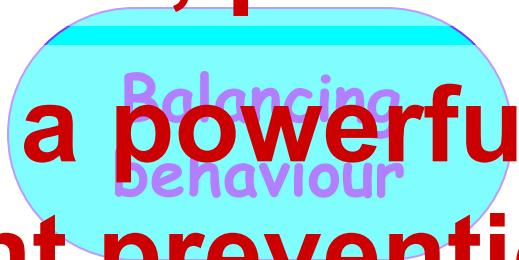


Bottom loop only

BMJ bans "accidents"
2 June 2001



Reducing risks, protecting people exercising a powerful influence for accident prevention



Risk perceived through science

the role of the Royal Statistical society

- "a Richter scale for risk would involve taking a series of common situations of varying risk to which people can relate" (DoT)
- "a simple measure of risk that people can use as a basis for decision making" (RSS)

Table 1. Risk of an individual dying (D) in any one year or developing an adverse response (A)

Term used	Risk estimate	Example	
High	Greater than 1:100	A. Transmission to susceptible household contacts of measles and chickenpox	1:1 - 1:2
		A. Transmission of HIV from Mother to child (Europe)	1:6
		A. Gastro-intestinal effects of antibiotics	1:10- 1:20
Moderate	Between 1:100-1:1000	D. Smoking 10 cigarettes per day	1:200
		D. All natural causes, age 40 years	1:850
Low	Between 1:1000- 1:10000	D. All kinds of violence and poisoning	1:3300
		D. Influenza	1:5000
		D. Accident on road	1:8000
Very low	Between 1:10000- 1:100000	D. Leukaemia	1:12000
		D. Playing soccer	1:25000
		D. Accident at home	1:26000
		D. Accident at work	1:43000
		D. Homicide	1:100000
Minimal	Between 1:100000- 1:1000000	D. Accident on railway	1:500000
		A. Vaccination-associated polio	1:1000000
Negligible	Less than 1:10000000	D. Hit by lightning	1:10000000
		D. Release of radiation by nuclear power station	1:10000000

Source: *On the State of the Public Health: the Annual Report of the Chief Medical Officer of the Department of Health for the Year 1995*, London, HMSO, 1996, p. 13.

A Richter Scale for Risk?

Risk of an individual dying in any one year
as a result of a road accident

= 1:8000 (*On the State of the Public Health 1995*)

= 1:16000 (*Road Accidents Great Britain 1995*)

Young male vs
middle-aged female



100

X

134

X

Personality disorder
vs normal



10

X

20

=

2 680 000

3am Sunday vs
10am Sunday



2.5 times over
limit vs sober



- **I exaggerate**

the four variables are not independent;

there are more disturbed drunken young men on the road at 3am Sunday

- **or do I?**

the four numbers in the equation are all *averages*.

Further variables must be invoked to account for their variances,

is the car

big X new X equipped with ABS brakes X insured ...?

is the road

slippery X well-lit X straight ... ?

is the driver

sleepy X angry X on drugs X short-sighted ...?

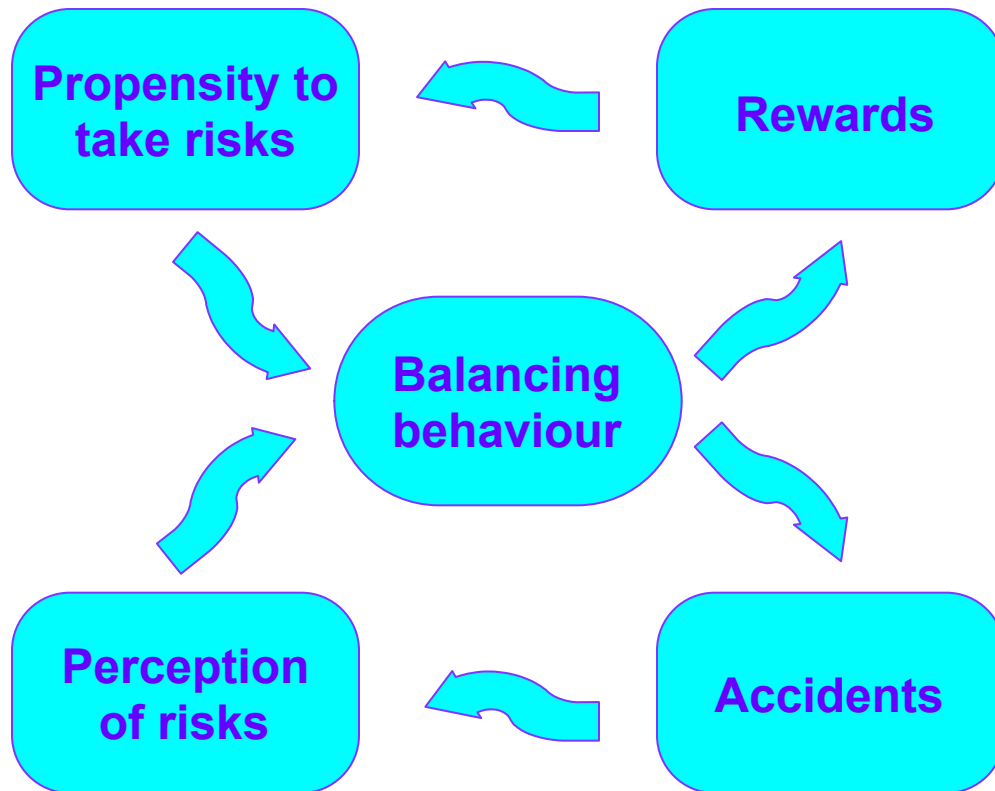
is the ?

Flu jabs:

Possible side effects

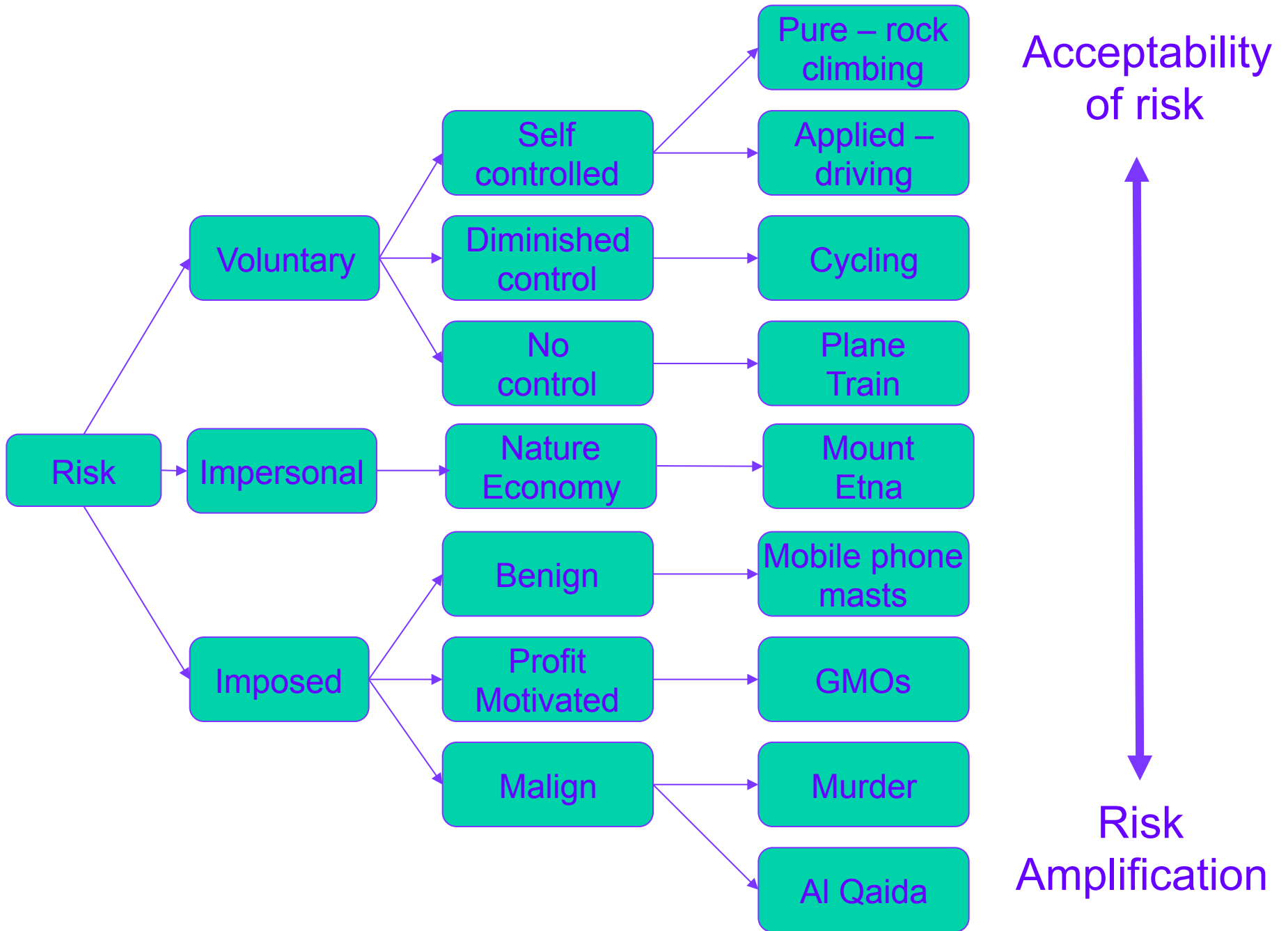
- rarely a severe allergic reaction may occur with symptoms that may include low blood pressure, difficulty breathing, going blue, loss of consciousness, and very rarely swelling around the eyes, lips and in the throat.
- **common side effects** (1:10 > 1:100): redness, swelling, pain, tenderness and bruising around the injection site; sweating, fever, malaise, shivering, tiredness, headache or joint and muscle pain.
- **uncommon side effects** (1:100 > 1:1000): generalized skin reactions including itching and rash.
- **rare side effects** (1:1000 > 1:10,000): burning or stabbing pain following course of a nerve, tingling sensations, fits, excessive bleeding or bruising.
- **very rare side effects** (less than 1:10,000): inflammation of the brain, spinal cord or nerves; skin rashes, joint inflammation, kidney problems: Guillain-Barre syndrome.

The risk thermostat



Money, power,
love, glory, food,
sex, rushes of
adrenaline,
control ...

Money, health,
life, status,
self-esteem,
embarrassment,
jail, **loss of control ...**



Voters want it both ways from state, Blair told

Michael White

Tuesday January 16, 2007

[The Guardian](#)

British voters have such deeply contradictory attitudes towards the role of government that they want it both to do more to protect them from danger and to let them make their own decisions about dangerous activities, Tony Blair was warned yesterday. ... A Downing Street seminar of experts charged with promoting "citizen forums" was told by Mori pollster Ben Page that, out of the 15 core EU states, Britain had the highest proportion of respondent who believed "the state intervenes too much in our lives".

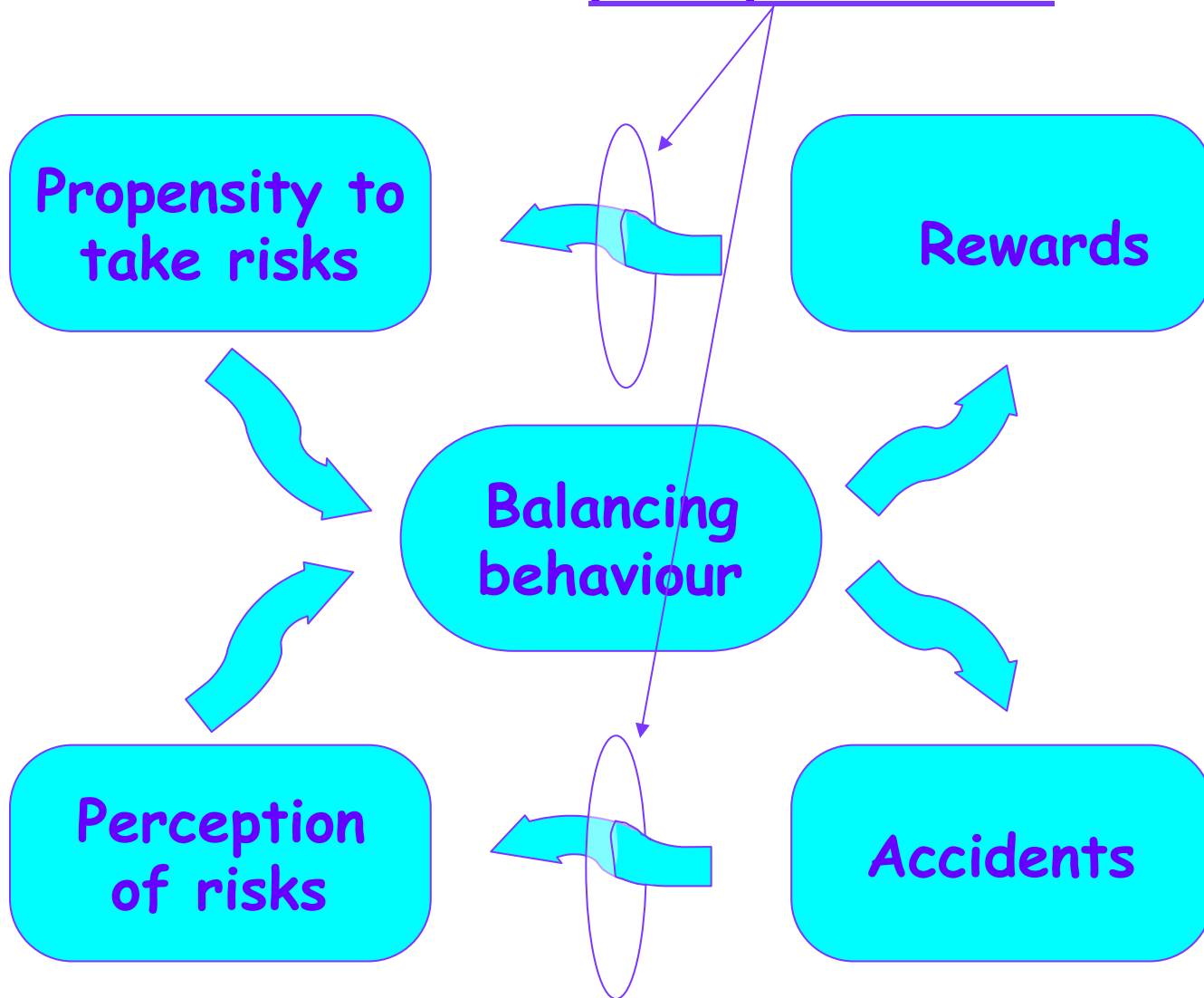
A virtual risk: vCJD from BSE?

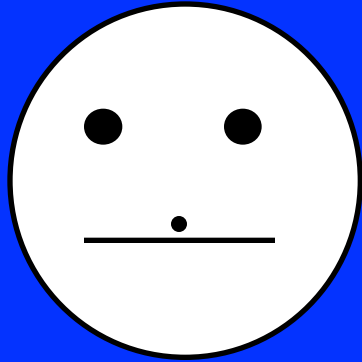
“I have worked in this field for 25 years ... did I go out and eat lamb chops, did I go out and eat lamb brain, sheep brain? The answer was ‘no’, but it was not based on scientific criteria, it was based on just emotion. ... At a scientific level I cannot give you a scientific basis for choosing or not choosing beef, because we do not know the answers.”

Nobel Laureate Stanley Prusiner

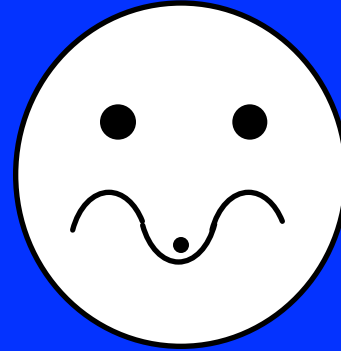
BSE Inquiry, 6 June 1998

Risk thermostat with perceptual filters

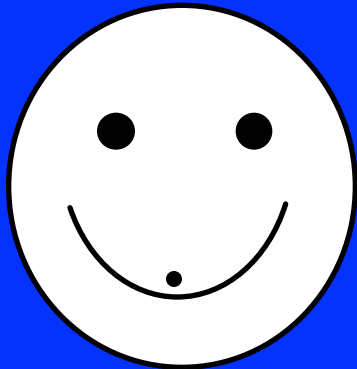




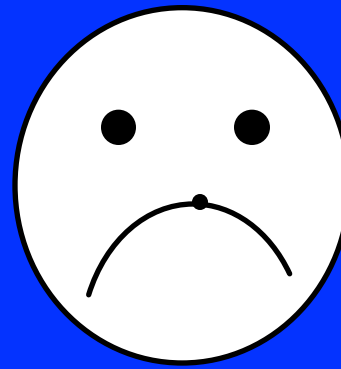
Fatalist



Hierarchist



Individualist

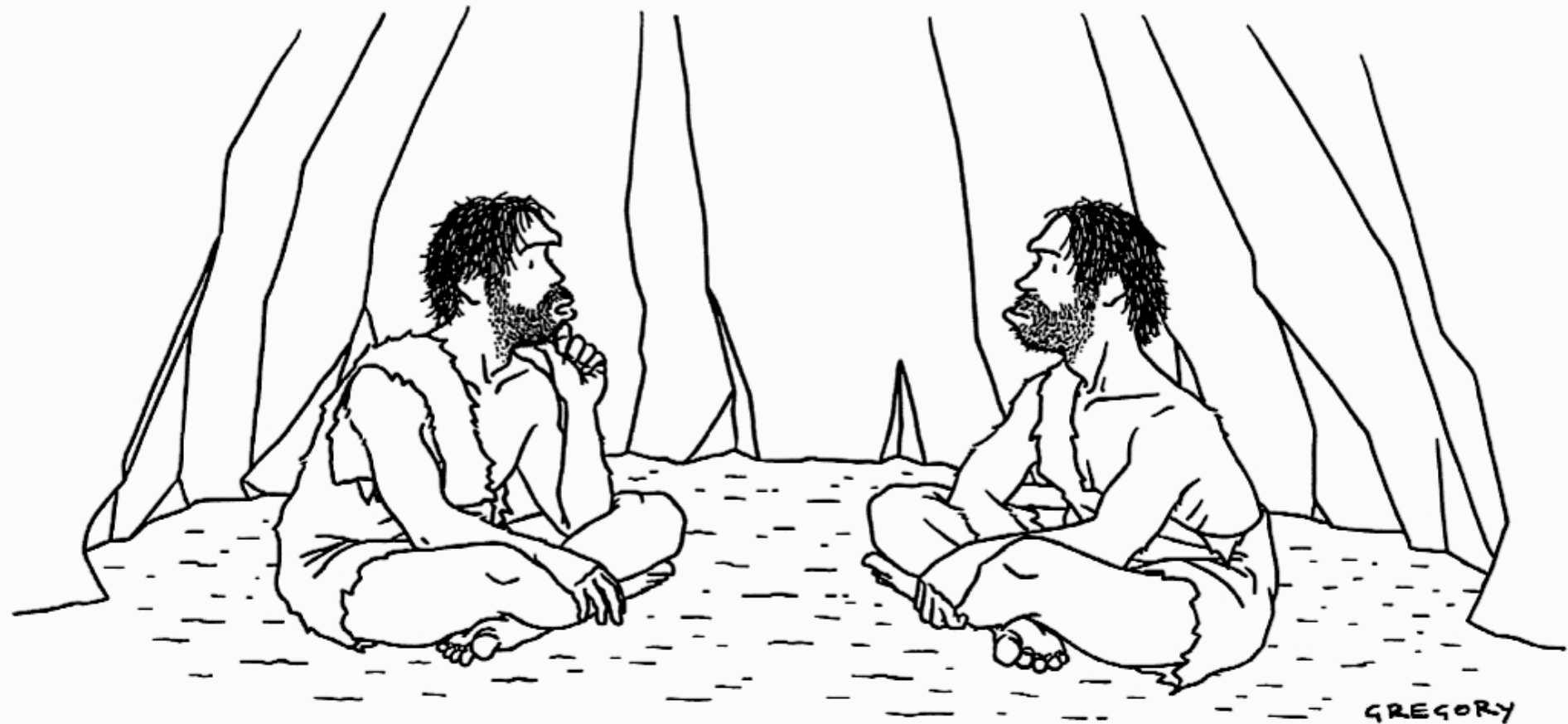


Egalitarian

107. Lord Reay (Chairman) Your opposition to the release of GMOs, that is an absolute and definite opposition? It is not one that is dependent on further scientific research or improved procedures being developed or any satisfaction you might get with regard to the safety or otherwise in future?

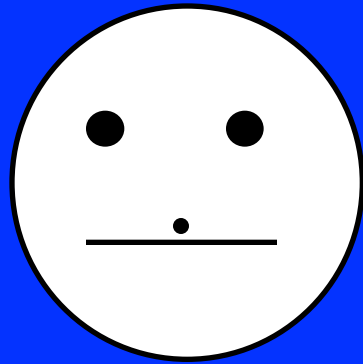
(Lord Melchett) It is a permanent and definite and complete opposition based on a view that there will always be major uncertainties. It is the nature of the technology, indeed it is the nature of science, that there will not be any absolute proof. No scientist would sit before your Lordships and claim that if they were a scientist at all.

House of Lords Select Committee on GM Crops,
Minutes of Evidence,
3 June 1998



“Something’s just not right—our air is clean, our water is pure, we all get plenty of exercise, everything we eat is organic and free-range, and yet nobody lives past thirty.”





Fatalist

The legislators
Enforcers
Compliance managers

Hierarchist

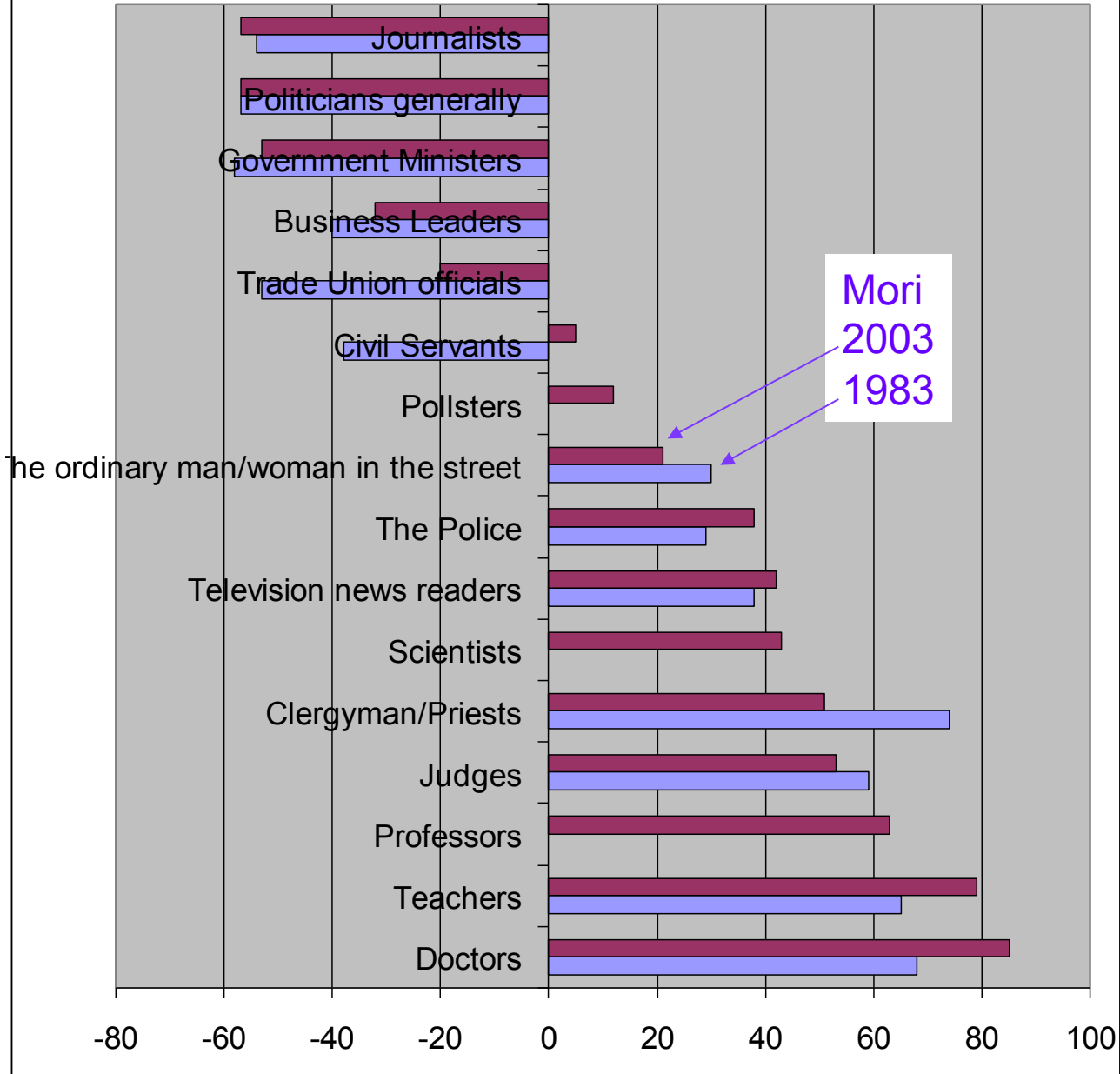


Individualist

Single issue campaigners

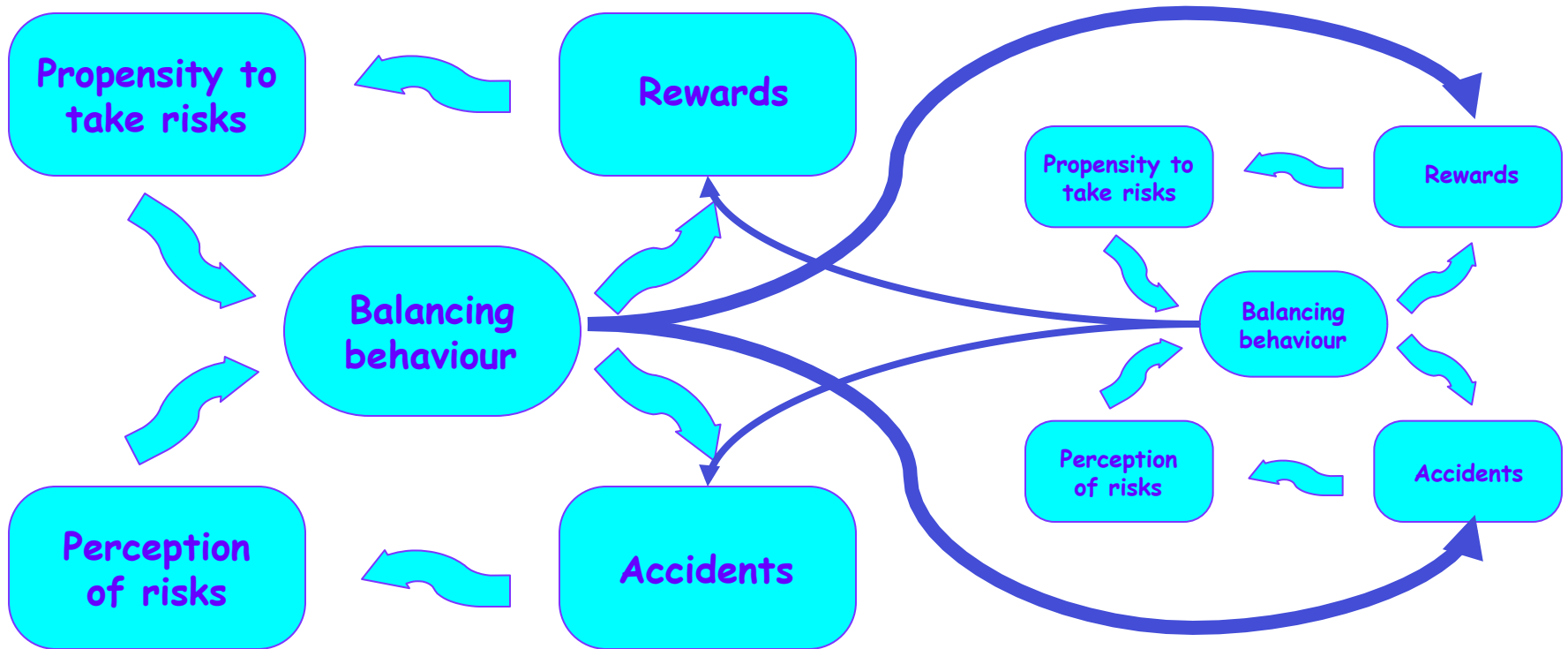
Egalitarian

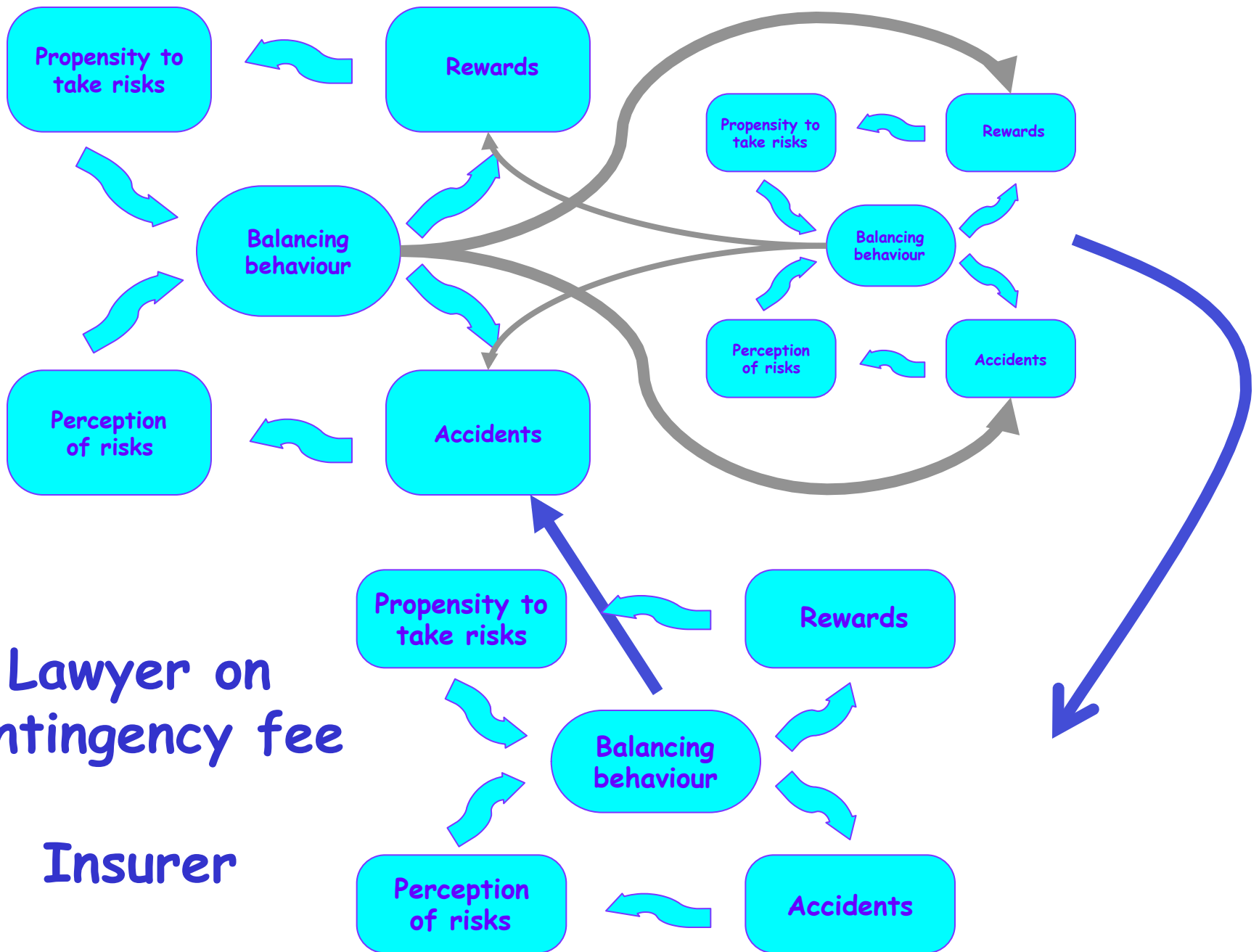
Net Trust by Profession: trust - don't trust





The lorry driver and the cyclist





Lawyer on
contingency fee

Insurer

69% of Americans believe in angels. 46% have their own guardian angel.

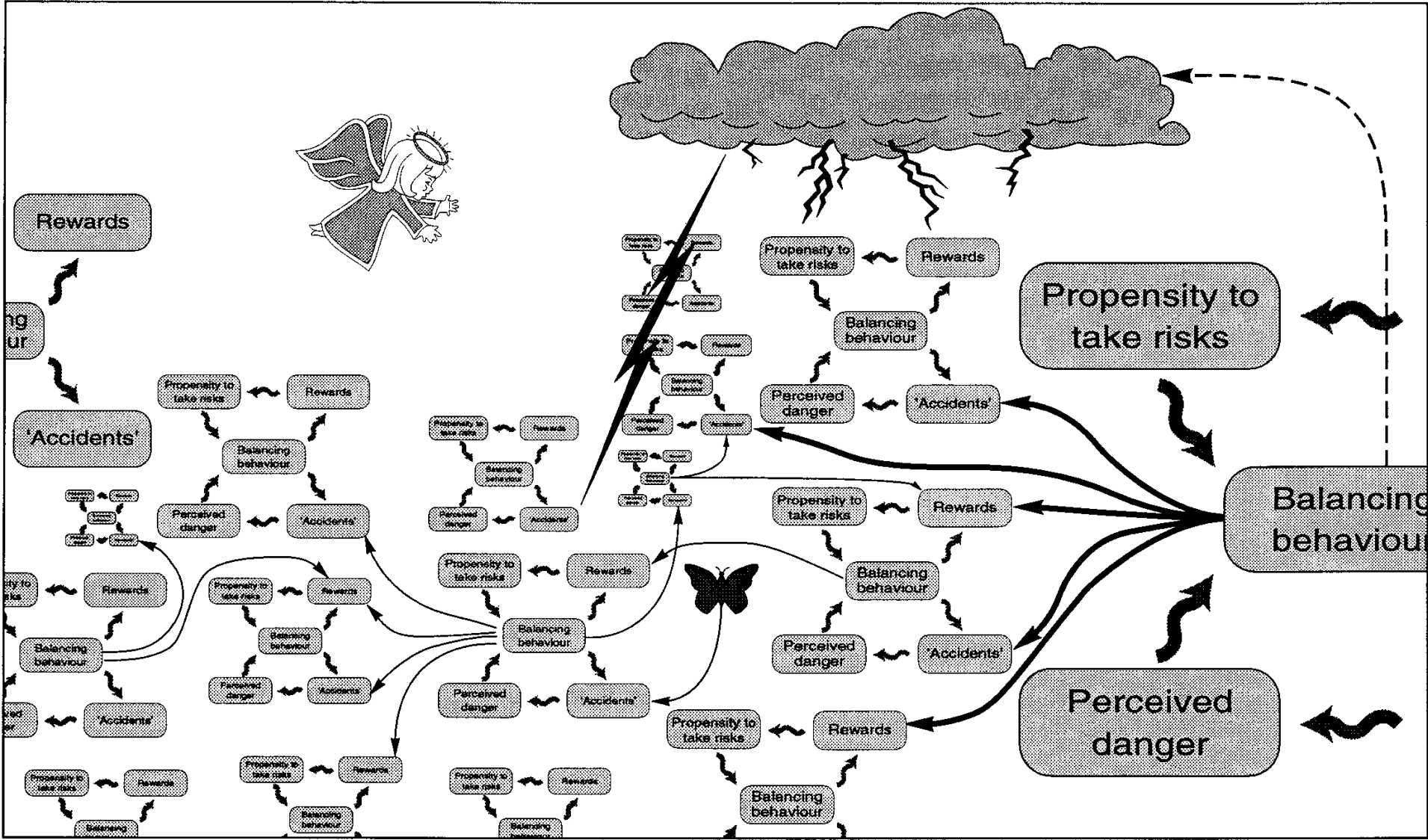


Figure 2.6 The dance of the risk thermostats.





















NO LET

rental unit
to let
605 7028 4000



Fire

Fire

More whizz.



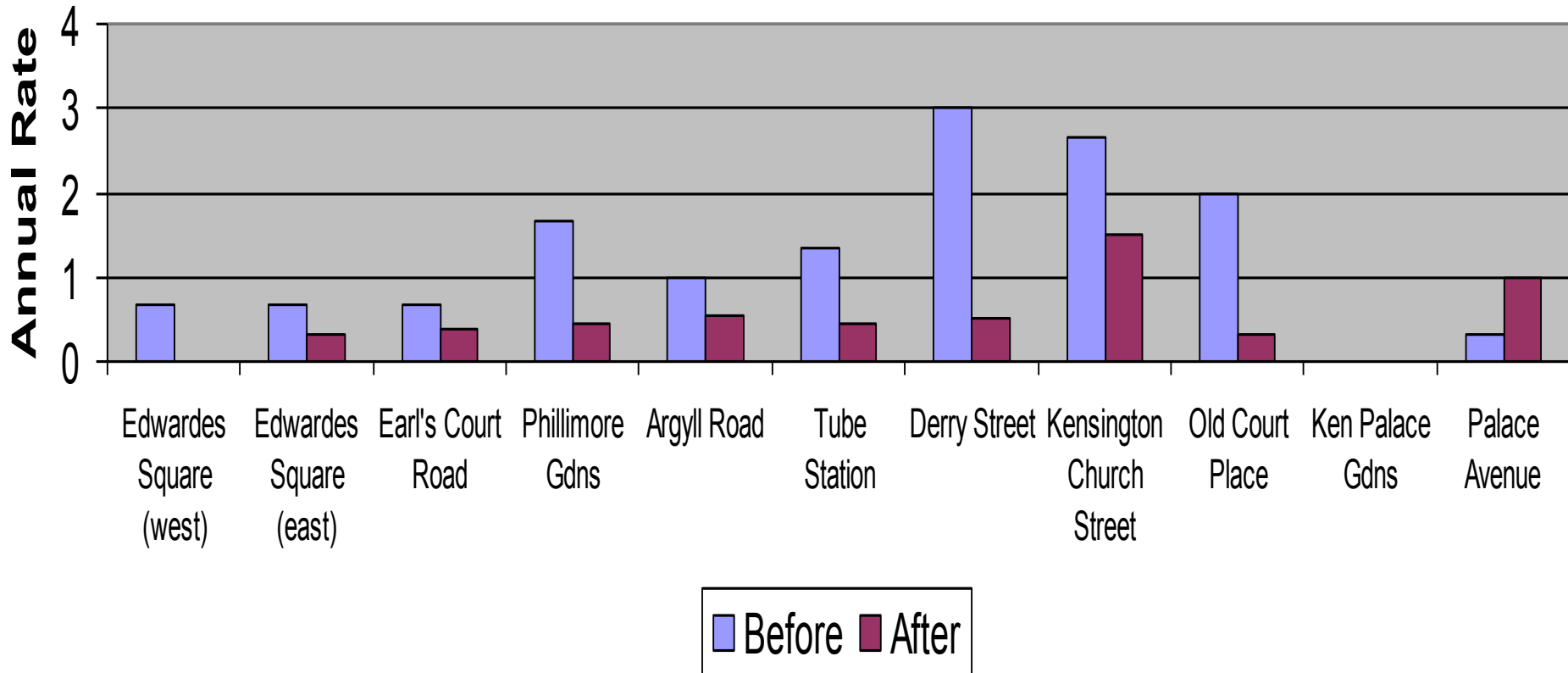


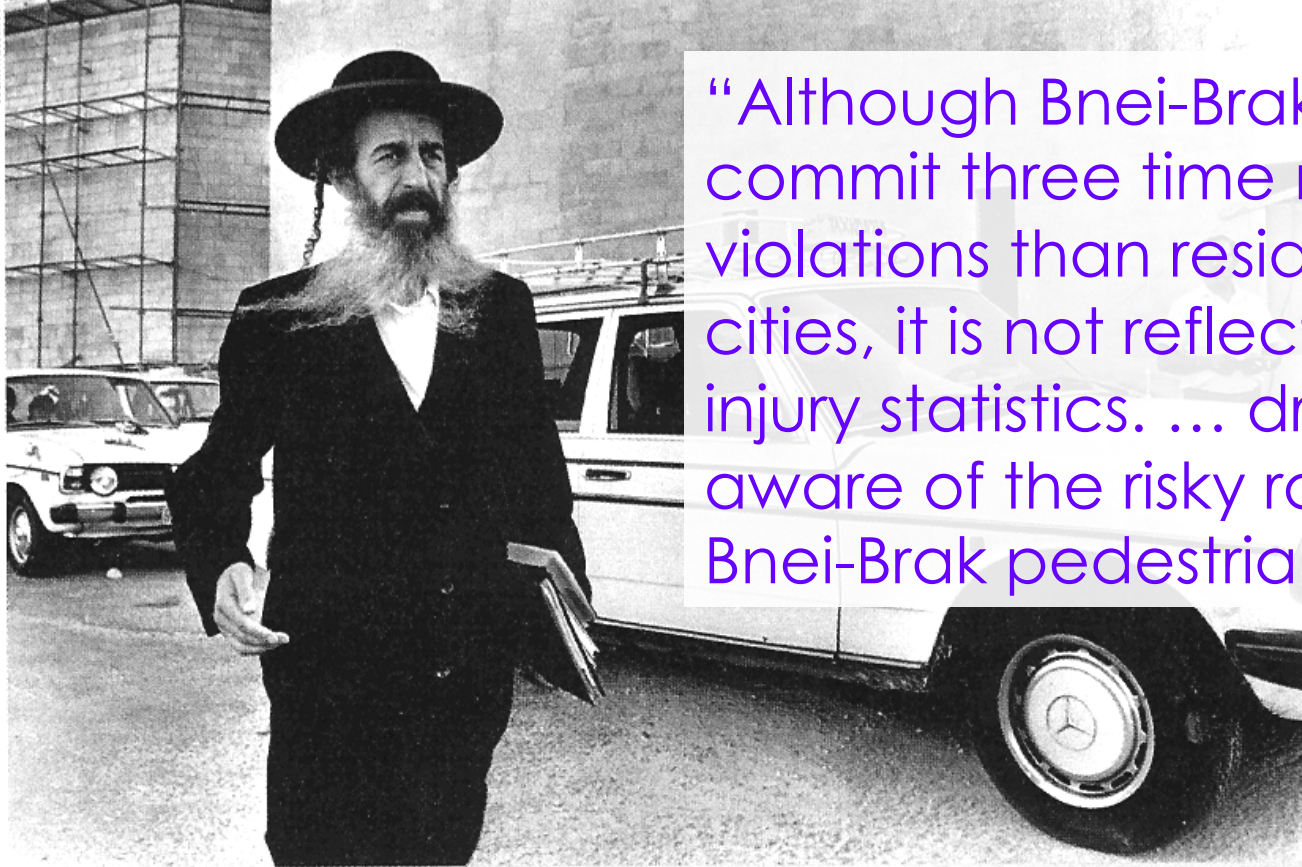


Source: www.rbkc.gov.uk

Kensington High Street: Pedestrian Accidents

Average decrease after removing pedestrian barriers = 60.5%





“Although Bnei-Brak residents commit three time more on-road violations than residents of other cities, it is not reflected by the injury statistics. ... drivers are aware of the risky road habits of Bnei-Brak pedestrians.”

God will protect us. Everyone else should look left then right

IT'S rarely said that religious types live dangerously, but it seems they do when it comes to crossing roads. A new study in Israel suggests devout Orthodox Jews are three times as likely to be risk-taking pedestrians as their neighbours in secular communities.

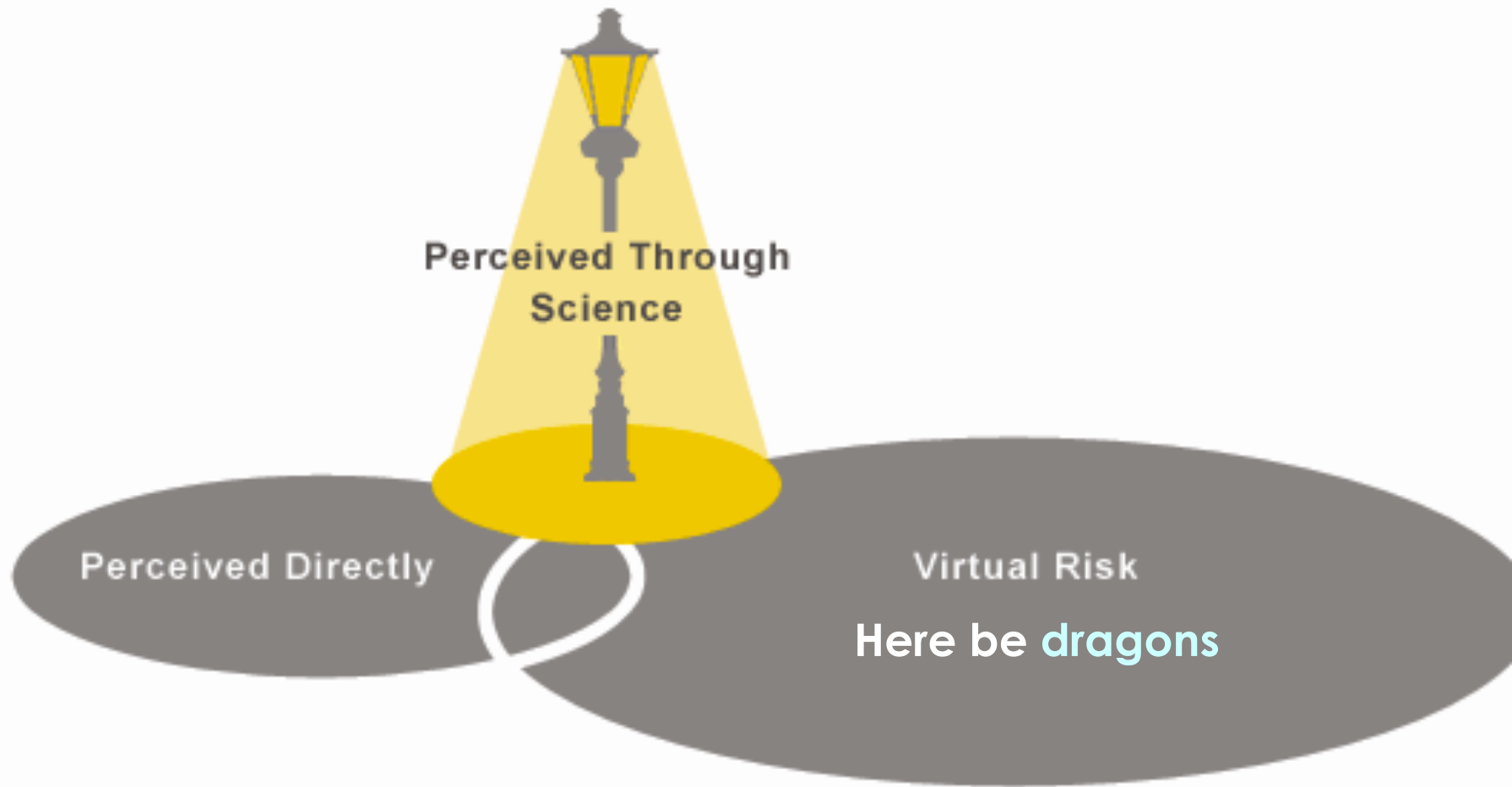
Tova Rosenbloom of Bar-Ilan University in Ramat-Gan suspected religious beliefs might play a role after hearing complaints about pedestrian behaviour in the ultra-Orthodox community of Bnei-Brak. “Drivers who get to Bnei-Brak complain that they need seven eyes,” she says. “People walk on the roads as if they were footpaths.”

To find out more, Rosenbloom and her colleagues watched more than 1000 pedestrians at two busy junctions, one in Bnei-Brak and the other in Ramat-Gan, a largely secular city. They totted up the number of times a pedestrian either jaywalked, walked on the road rather than the footpath, crossed without looking for traffic, or crossed without holding an accompanying child's hand.

The ultra-Orthodox inhabitants of Bnei-Brak were three times as likely to break these rules as people in Ramat-Gan, the team found (*Transportation Research Part F*, vol 7, p 395). Rosenbloom thinks that ultra-Orthodox faith might contribute to this cavalier behaviour by making people respect religious law more than state-imposed rules. It is also possible that religious people take more risks because they are more fatalistic and have less fear of death.

New Scientist
22 January 2005

Risk management: where are the keys?



Risk management



For more see my blog

www.John-Adams.co.uk

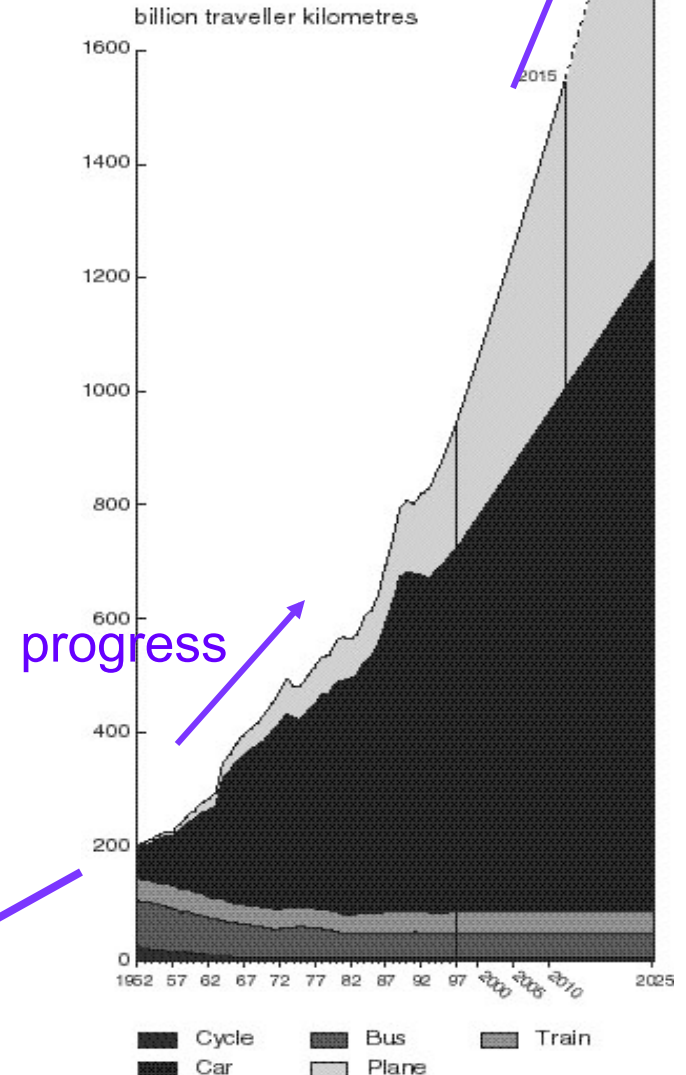
Business as usual in Britain

- 5 miles per day in 1950
- More than 30 miles per day now
- 60 miles per day in 2025

hypermobility

Travel by Britons
by cycle, bus, train, car and plane

Progress?



hypomobility