LSE Law Matters Inaugural Lecture

"Open the Pod Bay Doors, HAL": Machine Intelligence and the Law

Professor Andrew Murray

Professor of Law, LSE

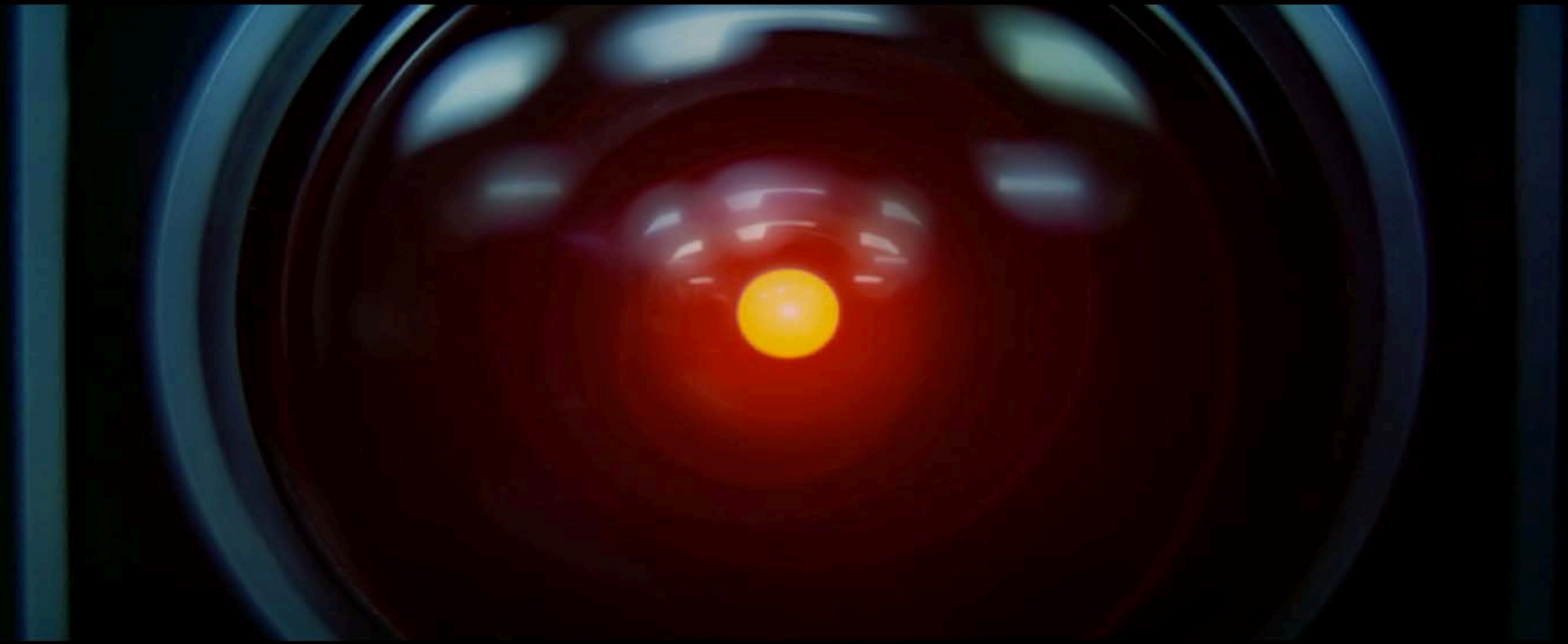
Professor Julia Black

Chair, LSE

LSE events

Suggested hashtag for Twitter users: **#LSEMurray**

Open the Pod Bay Doors HAL: Machine Intelligence and the Law



Part I
HUMANS

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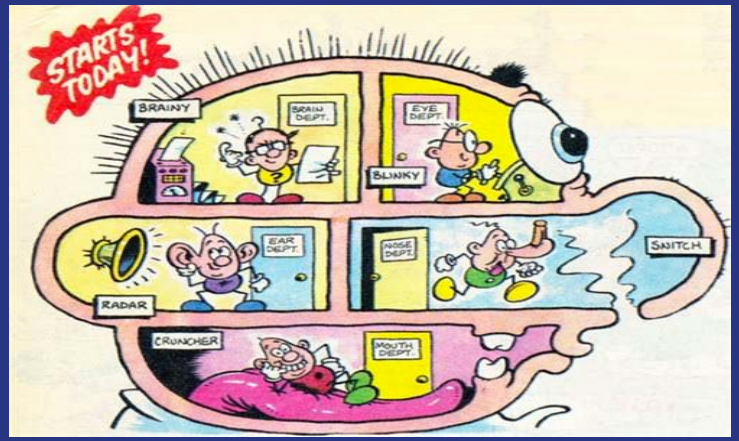
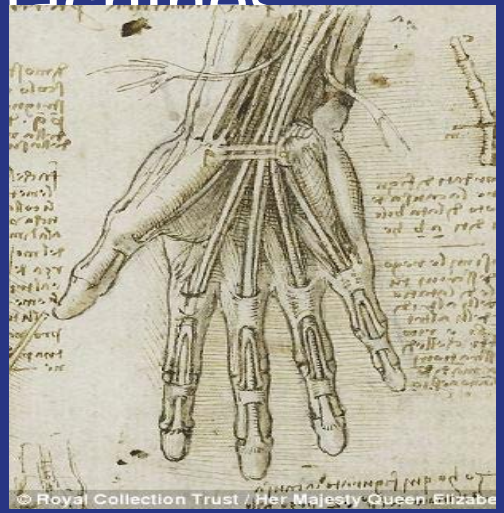


Humans are “meat” machines



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The Dress

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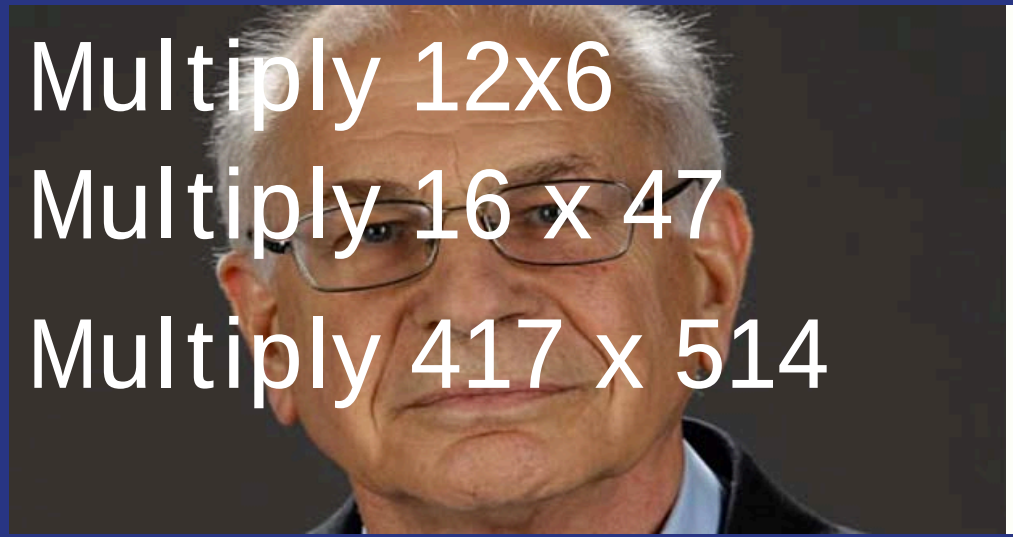
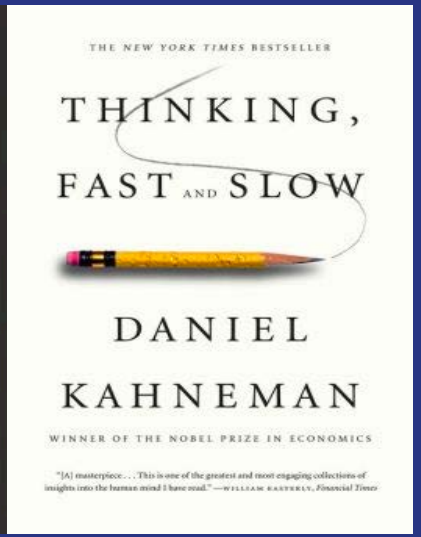
Higher/Lower Order Thought
System I and System II





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Outsourcing System 2

Brains at the Ready II

Smartphones Allowed...

Who won the 2014 Eurovision Song Contest?

Who won the 1972 Eurovision Song Contest?

Conchita Wurst

Vicky Leandros

(Representing Luxembourg)
Après Toi

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Assisted Decision-Making

Click here for the relevant video

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Supplementary Decision-Making

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Autonomous Decision-Making

Click here for the relevant video

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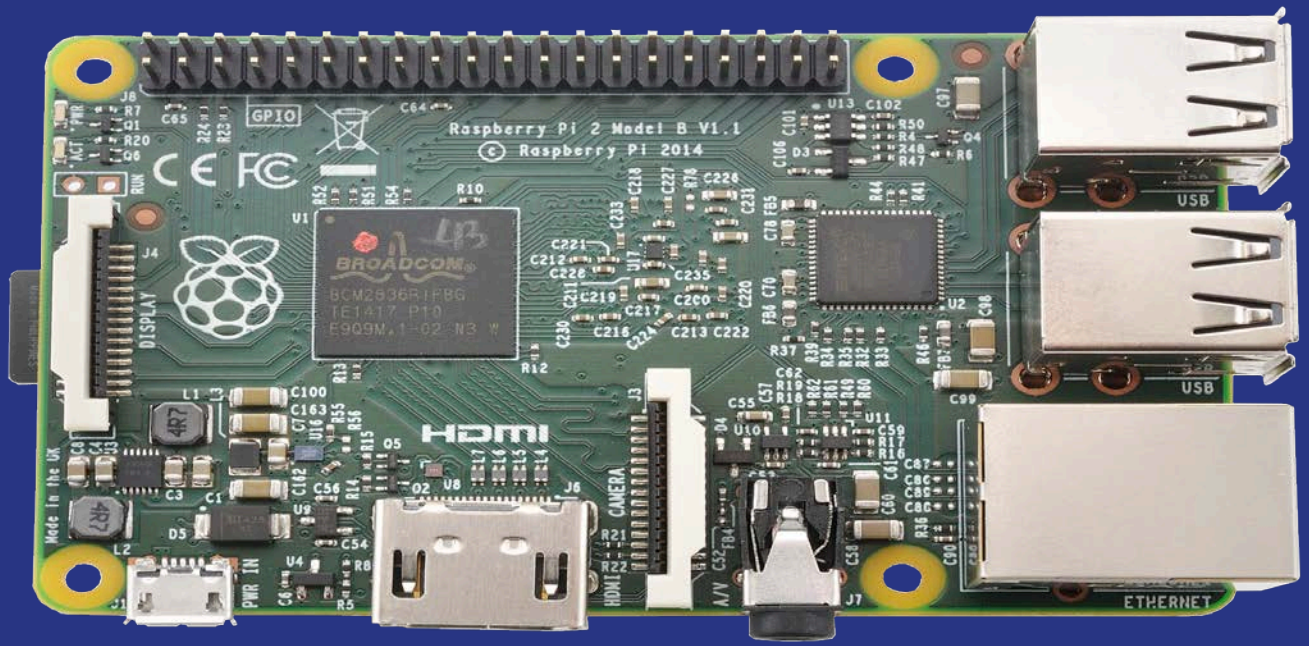
How Machines Think (or Don’t)

Machines (currently) don’t think they process.



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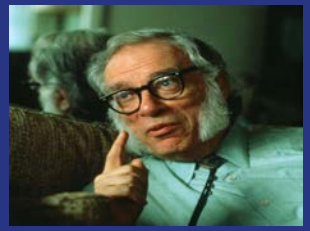
Law for Machines?



Handbook of Robotics, 56th Edition, 2058 A.D

0. A robot may not harm humanity, or, by inaction, allow humanity to come to harm.
1. A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3. A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws

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The Moral Maze

The trolley problem

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Open the Pod Bay Doors HAL

[Click here for the relevant video]

Is HAL morally or legally wrong?

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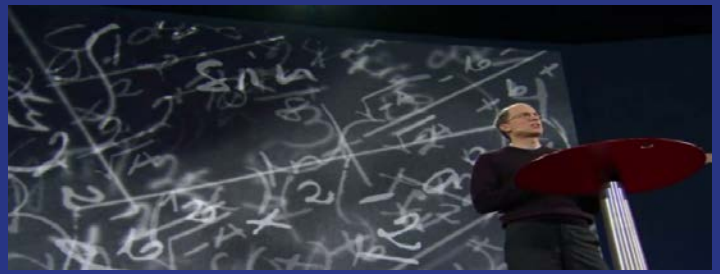
That's Science Fiction Right?



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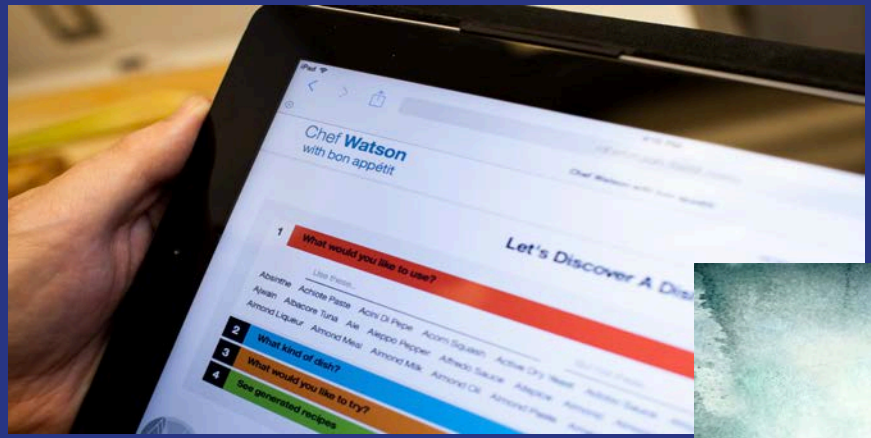
Watson



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Smart Agents and Safety

Driver's Ed.				
	Human Factors	Environment	Vehicle	Human Only
Tri-Level (1979)	93%	34%	13%	N/A
TRRL (1980)	95%	28%	8.5%	65%
IAM (2009)	>90%	15%	1.9%	N/A
NHTSA (2015)	94%	2%	2%	N/A

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A Quick Recap

1. Humans remain uniquely the only source of the form of higher order sentience that allows us to make complex moral decisions.
2. Humans, perhaps uniquely in the animal world, can rationalise objective and subjective thought.
3. Human brains are complex, but also are resource hungry and as a result we often reject resource heavy higher-order thought for lower level intuitive thought.
4. Humans have a capacity to outsource anything complex, difficult, dangerous or time consuming.
5. We are developing machines which are capable of complex thought and creativity.
6. We are developing machines designed to act autonomously.
7. Human Level Machine Intelligence could be as little as 14 years away (or as far away as 75 years).
8. It is perfectly logical to suggest that there should be an assumption that machines should replace humans in all areas where human error remains a constituent factor in harmful outcomes.

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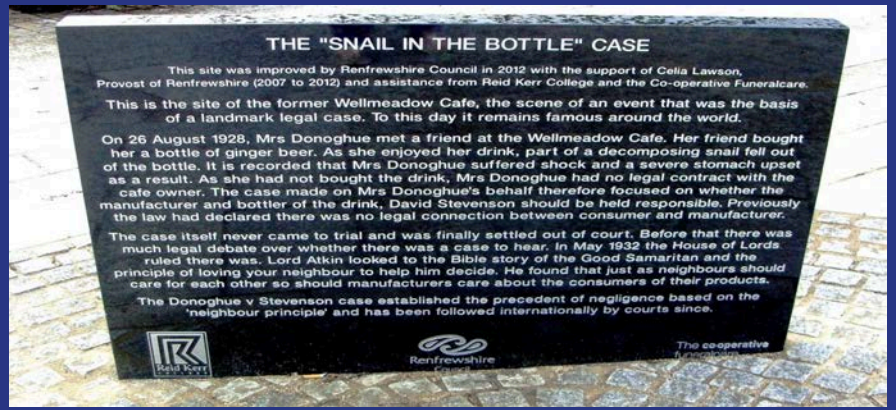
Sentience in the Law

Criminal Law

Actus Reus Non Facit Reum
Nisi Mens Sit Rea



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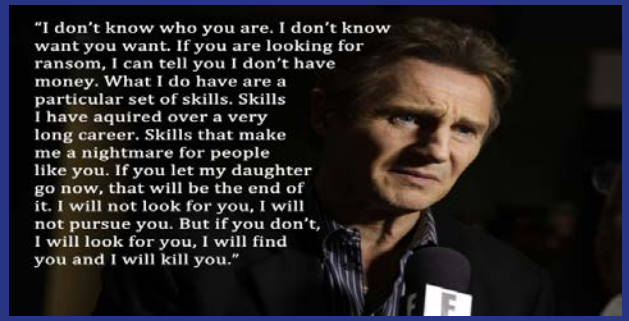
Sentience in Punishment



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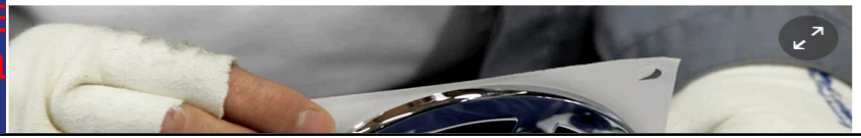
The Chal entience

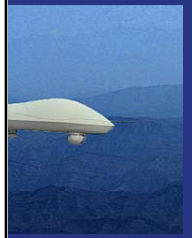
A new legal conce
Objective Persona

Robot kills worker at Volkswagen plant in Germany

Contractor was setting up the stationary robot when it grabbed and crushed him against a metal plate at the plant in Baunatal



Objective P



ns Rea?

German news agency DPA reported that prosecutors were considering whether to bring charges, and if so, against whom.

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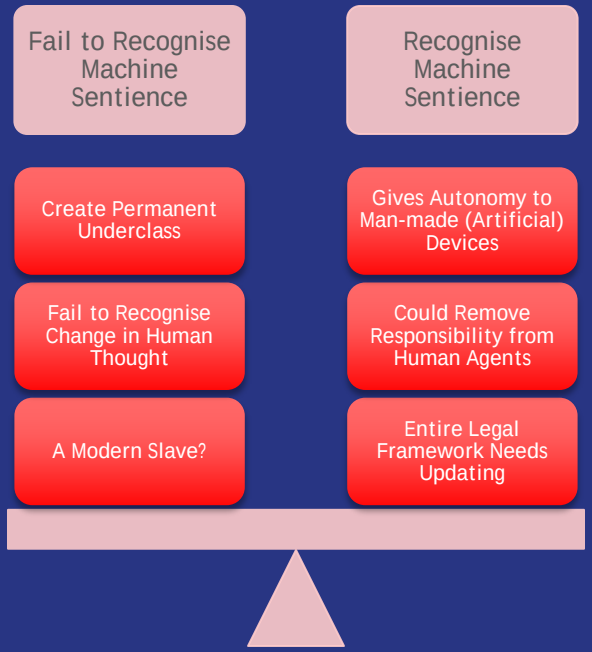
The Lawmaker's Dilemma



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The Lawmaker's Solution?

Ambient Law

"Code is Law"

Lex Machina

Legal/Code Hybrid for both Humans and AIs

(Asimov's) Fourth and Fifth Laws

- A robot must establish its identity as a robot in all cases.
- A robot must know it is a robot.

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Lex Machina's Normative Values (from Asimov)

1. A self-aware being (human or robot) may not harm any class of self-aware beings, or, by inaction, allow any class of self-aware beings to come to harm.

1. A self-aware being (human or robot) may not injure a self-aware being or, through inaction, allow a self-aware being to come to harm.

1. A self-aware being (human or robot) must obey the Law except where such provisions would conflict with the First and Second Values.

1. A robot should protect its own existence as long as such protection does not conflict with the First, Second or Third Values.

1. A robot must know it is a robot. A human must know they are human.

1. A robot must establish its identity as a robot in all cases. A human must establish its identity as a human in all cases.

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