Can Computers (Really) Think?

Mike Arnautov

Core assumption of moderate Artificial Intelligence

It is possible for an information processing artefact to exhibit sentient behaviour

Intuition pumps

Computer analogies are a useful pump material

Thoughts and brains

Mental events and physical events:
If they do relate, then how?

Dualism

No connection

Epiphenominalism

Mental events are irrelevant

Identity theory

Complete ontological identity

Functionalism

Mental events are multiply realisable

Anomalous Monism

1. At least some mental events interact causally with physical events - *The Principle of Causal Interaction*

2. Events related as cause and effect fall under strict laws (that is, laws that are 'precise, explicit and as exceptionless as possible') - *The Principle of the Nomological Character of Causality*

3. There are no strict laws (as opposed to mere generalisations) relating mental and physical events - *The Anomalism of the Mental*

Objection 1

Anomalous Monism is self-contradictory

Objection 2

Anomalous Monism collapses into epiphenominalism

Objection 3

Anomalous Monism cannot explain how mental events could cause physical events

Why is Anomalous Monism attractive?
As Marianne Talbot put it in 2011:

"AM is physicalist insofar as it insists that every causally efficacious mental state token has a physical description."

"AM is non-reductive insofar as each token of a mental state type might have a different physical description."

"... the state is governed by a physical law, whilst in virtue of its mental description the state can underwrite reason explanations of behaviour."

Laws are about type-type interactions

But Davidson is proposing
token-token identity of minds and brains

Connection with Quine's
radical indeterminacy of translation

Mapping Anomalous Monism
Into computers

"Keep it as simple as possible but no simpler"

Brain ⟶ Hardware
Mind ⟶ Software

Anomalous Monism for computers

1. At least some software events interact causally with hardware events

2. Events related as cause and effect fall under strict laws

3. There are no strict laws relating software and hardware events

Software as virtual patterns

Janet was quite ill one day
Febrile trouble came her way.
Martyr-like, she lay in bed;
Aproned nurses softly sped.
Maybe, said the leech judicial,
Junket would be beneficial.
Juleps, too, though freely tried,
Augured ill, for Janet died.
Sepulchre was sadly made,
Octaves pealed and prayers were said.
Novices with ma'y a tear
Decorated Janet's bier.

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Virtual patterns exist insofar as one
knows how to see them

Running programs (software threads) are
dynamic virtual patterns in computer memory

Operating systems are evolving towards
becoming self-describing dynamic virtual patterns

Anomalous Monism works fine for computers

1. It cannot be self-contradictory

2. Software is not epiphenomenal

3. Software events can reliably cause hardware events

Suppose we accept that Anomalous Monism make sense in the IT context. What follows?

1. Anomalous Monism is a coherent position.

2. Perhaps thoughts are dynamic virtual patterns on neural brain activity

So, could computer really think?

If we interpret this as
"Could artefacts exhibit sentient behaviour?"

Thank you for your attention!