COMP310 – Multi Agent Systems
Video 2.1: Intentional Systems

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See Vital for all material

“I believe…”

“I will take my umbrella because believe it will rain
And I want to stay dry.”

“Craig thinks that spaghetti Bolognese is acceptable as a breakfast food.”

Entities whose behaviour can be predicted by the method of attributing belief, desires, and rational acumen

“I think that my friend believes in magic.”

John McCarthy on Intentional Systems

- *It is **legitimate** to give **beliefs, free will, intentions, consciousness, abilities**, or **wants** to a machine*
- *…when it expresses the same information about the machine as it would a person.*
- *It is **useful** when the ascription helps us understand the machine's:*
  - *structure*
  - *past or future behaviour*
  - *how to repair or improve it.*
- *It is perhaps never **logically required***
- ***Most straightforward** for machines of known structure*
- ***Most useful** when applied to entities whose structure is **not completely** known ...*

*paraphrased

Intentional Systems give us a **familiar, non-technical way** to understand and explain agents.

- Toaster is a **very cooperative** agent
- Will *always* toast bread when it **thinks** we want some toast
- Inserting bread will **communicate** our desire for toast

The more we know about a system,
the less we need the Intentional Stance to explain behaviour

As complexity increases, abstractions become more useful

Agents as Intentional Systems

- Good for **characterising agents**
- Allows for **nested representations**
- Allows for an agent as a **post-declarative system**