

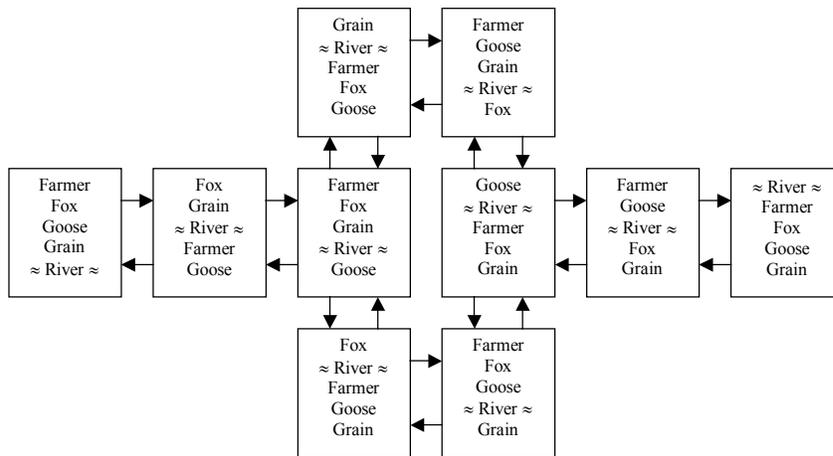
What is I? What is AI? And...Remembrance of Schemes past...

Two Powerful Ideas

1. With the right representation, the problem is almost solved.

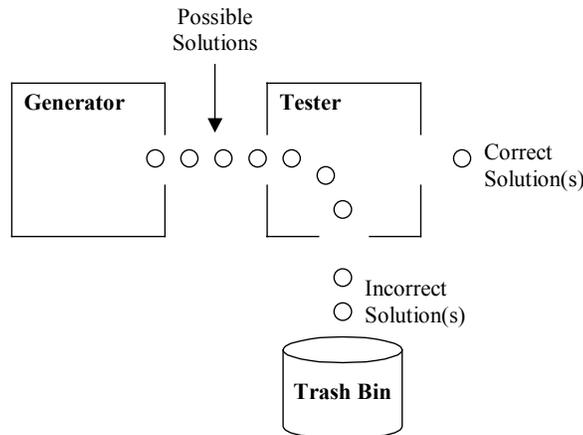
Example: Farmer, Fox, Goose, Grain problem.

A farmer wants to move himself, a silver fox, a fat goose, and some tasty grain across a river. Unfortunately, his boat is so tiny he can take only one of his possessions across on any trip. Worse yet, an unattended fox will eat a goose, and an unattended goose will eat the grain. What is he to do?



2. Simple ≠ Trivial

Example: Generate and Test Method



3. BUT... how do we know we have correct solution? How does matching & representation enter in here? Computation? (Examples: symbolic integration; language; VLSI; drug discovery...)

4. What is Intelligence? What is artificial intelligence?

Is this intelligence?

- Seeing objects: (blindspot), constancy of external world, edges
- Speech perception: twasbrilligandtheslithytoves
- Learning language when you're a child
- Learning language when you're an adult
- Kahneman and Tversky: are Stanford undergrads intelligent?

Which of these can be done now by computer/require intelligence?

- Playing a decent game of table tennis
- Writing an intentionally funny story
- Giving competent legal advice in a specialized area of law
- Translating spoken English into spoken Warlpiri in real time

How about these?

- Are bees intelligent? Conscious?
- Is Deep Blue intelligent? Conscious?
- Are thermostats intelligent? Conscious?

5. Food for Thought

Historical sources: the earliest Turing tests for intelligence

Descartes, Condorcet, Vaucasson - 17th century

(Cartesians: *Discours sur la méthode, cinquième partie*)

Even earlier:

“Rabbah said: ‘If the righteous desired it, they could [by living a life of absolute purity] be creators.’

Rabbah created a person, and sent him to Rabbi Zera. Rabbi Zera spoke to him, but received no answer. Thereupon he said unto him, ‘Thou art a creature of the magicians. Return to thy dust.’ ”

(Babylonian *Masechet Sanhedrin*, 65b, circa 300-200 BCE?)

Re matching & representation: Tversky & Kahneman example:

Linda is 31 years old, single outspoken and very bright. She majored in philosophy. As a student she was deeply concerned with the issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.

Please rank order the following statements by their probability, using 1 for the most probable and 8 for the least probable:

- a) Linda is a teacher in elementary school
- b) Linda works in a bookstore and takes Yoga classes
- c) Linda is active in the feminist movement
- d) Linda is a psychiatric social worker
- e) Linda is a member of the League of Women voters
- f) Linda is a bank teller
- g) Linda is an insurance salesperson
- h) Linda is a bank teller and is active in the feminist movement

