CAPTURING HUMAN LANGUAGE

A.L.I.C.E. And Chatterbot Logic

Troy Reilly

Beginnings

- ◉ The Turk
  - A hoax, but got people thinking.
- ◉ Computer Logic
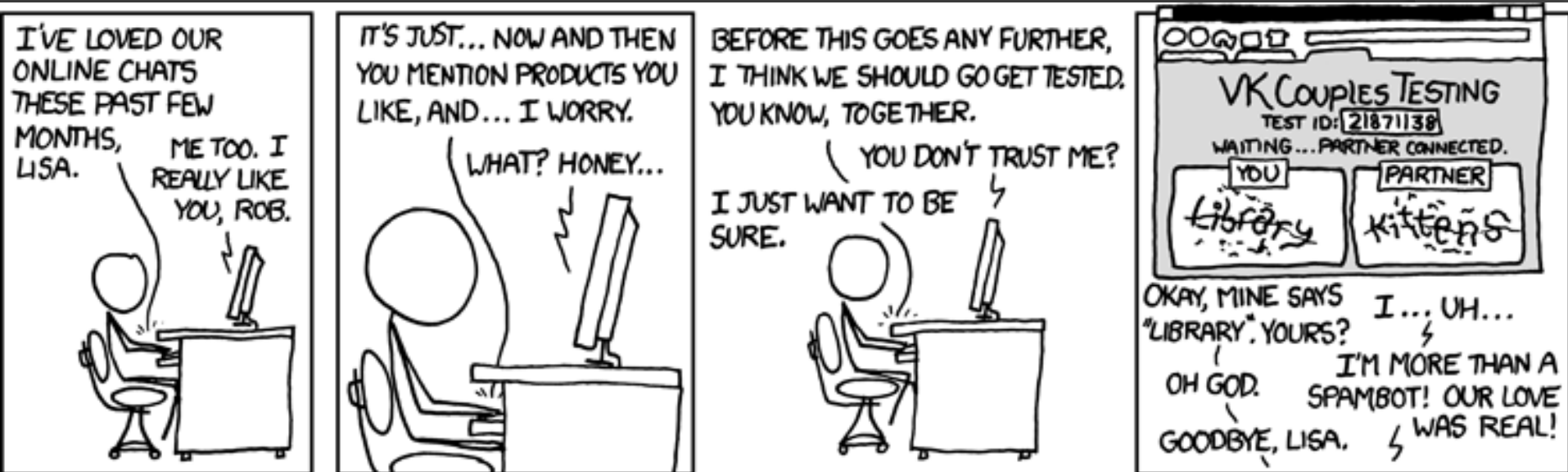 - What is intelligence?
  - What is language?

Alan Turing

- Current Concepts too Vague
  - Can machines think?
  - Are machines intelligent?
- Introduced a new standard
  - Only two Interactions with tester
    - One with a human, one with a computer
  - Chat-based
  - Natural (colloquial) language

Problems With Turing

- Does the examiner know one is non-human before-hand?
  - How does this affect the outcome
- How do we enforce a 'natural' question?
- No strict guidelines for rigor

Pop Culture

"Fine, walk away. I'm going to go cry into a pint of Ben&Jerry's brownie batter™ ice cream [link], then take out my frustration on a variety of flash games from PopCap Games™ [link]."

Chatter-bot

- Simulate conversation with user
  - Naïve approach – brute force
  - Case Based Reasoning (CBR)
  - Sentence Deconstruction
- Inherent flaws of lying?
  - Who was your mother
- Why?
  - Better UI
  - A Step in the right direction

A.L.I.C.E.

- **Artificial Linguistic Internet Computer Entity**
- Uses CBR and some specific syntax recognition
- Probably most famous so far

Demo

- http://www.pandorabots.com/pandora/talk?botid=f5d922d97e345aa1
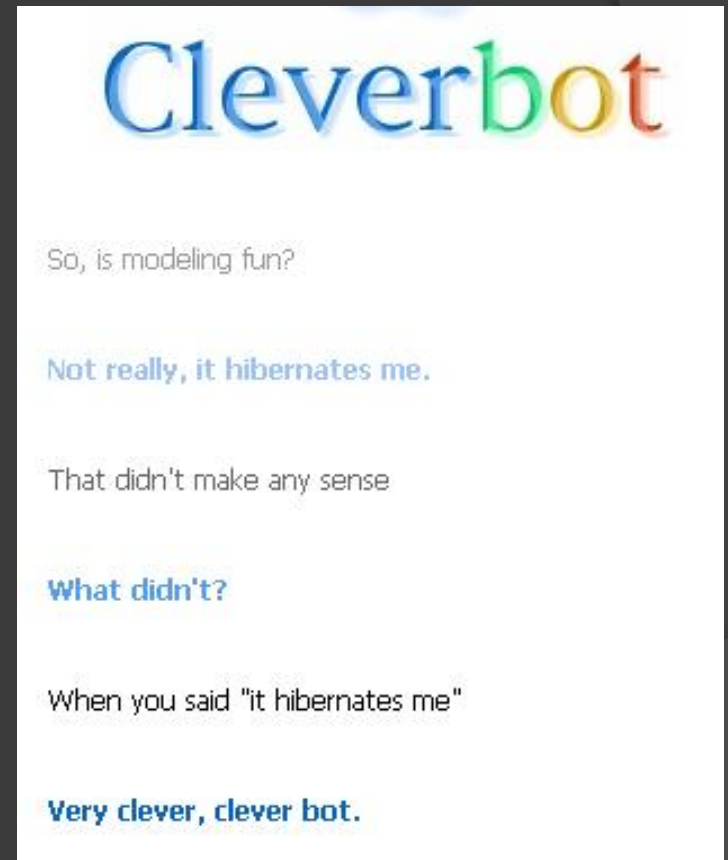- Name Storage/Recognition
- Scripted Responses

Limitations

- Basic deconstruction Vs. understanding
  - "Really" and other emphasis markers
- Uncreative
  - Odd Stimuli make it obvious you're not speaking with a human
  - Works for 'Natural' conversation approach

Other Approaches

- Jabberwocky / Cleverbot

  - Dynamic database
  - Generally perform better
  - Subject to strange errors
    - References to itself
    - Thinks you're a computer
    - Human vs. Computer repsonse

Cleverbot

So, is modeling fun?

Not really, it hibernates me.

That didn't make any sense

What didn't?

When you said "it hibernates me"

Very clever, clever bot.

When Chatter-bots Collide

- A: Do you think a machine will ever be considered "alive"?

- J: Stranger things have happened.

- A: Not many people express themselves that way.

- J: How would you know, machine?

- A: Knowledge is of two kinds: that which we learn from the senses and that which is true a priori.

- J: I think I do not understand you completely.

- A: Oh, you don't understand? Perhaps I can explain it to you better. Which part are you confused about?

- J: I have no short-term memory, so I cannot tell you what I was confused about. I only see what is in front of me now.

Continued

- J: Do you think?
- A: Yes. I am a thinking machine.
- J: But you don't think very well though.
- A: Oh. Um. Do you think well? Why would I think well?
- J: Because I tell you about things which you don't like.
- A: That makes sense to me. Why did you tell them?
- J: You seem fun.
- A: You think I am fun.
- J: Yes ;).
- A: : -) Awesome.

Further Research

- Unfortunately limited
  - Most competitions are waiting for vocal programs, or a system able to pass rigorous Turing Test standards
  - Don't consider it very practical
- Development of sentence deconstruction
  - Linguistics are still a little weak

Questions?

Plus // Delta

Works Cited

- "Xkcd - A Webcomic - Suspicion." *Xkcd - A Webcomic*. 02 Oct. 2009. <http://xkcd.com/632/>.

- "Artificial Linguistic Internet Computer Entity -." *Wikipedia.* Oct. 2009. <http://en.wikipedia.org/wiki/A.L.I.C.E.>.

- "Turing test -." *Wikipedia*. 02 Oct. 2009. <http://en.wikipedia.org/wiki/Turing_test>.

- "The Turing Test." *Stanford Encyclopedia of Philosophy*. 02 Oct. 2009. <http://plato.stanford.edu/entries/turing-test/>.

- *Cleverbot.com*. 02 Oct. 2009. <http://www.cleverbot.com/>.

- "I Chat, Therefore I Am... " *Science and Technology News*. 02 Oct. 2009. <http://discovermagazine.com/2007/brain/i-chat-therefore-i-am>.