CPS331 Lecture: The Turing Test; Eliza   last revised January 17, 2014

Objectives:

1. To discuss Turing's article
2. To introduce ELIZA

Materials:

1. *The Turing Test* book by Shieber to show
2. Boden book with Turing article
3. Turing article reading guide
4. Projectable of Turing article grouup discussion questions
5. ELIZA with DOCTOR script to demonstrate
6. Project 1 requirements
7. Project 1 setup including student server accounts

I. **Discussion of Turing Article**

   A. For class today, you read an article by Alan Turing in which he
      defined something he called "the imitation game", but which has
      come to be widely known as "the Turing test".

      1. Most introductory texts on AI mention the Turing test in their first
         chapter - as, indeed, the text we are using for this course does.

      2. The validity of this test has engendered much philosophical
         discussion - indeed, whole books have been written about this.

         Show Shieber book

      3. Later in the course, you will read an article in which the author
         argues that this test has actually led AI down a fundamentally
         wrong direction that has blocked progress for decades.

B. Prior to starting this course, had you heard the phrase "the Turing test"?

    1. In what context?

       ASK

    2. What did you understand the phrase to mean?

       ASK

C. Let's talk about the article

    1. Discuss in groups of 4-5, then report back

       PROJECT: Group discussion questions

    2. Other comments?

    3. Read first full paragraph on page 49 in Boden through "without expecting to be contradicted". Your reaction?

       ASK

II. **ELIZA**

A. The field of artificial intelligence is typically held to have been born in 1956 at a summer workshop held at Dartmouth college (hence called "the Dartmouth Conference". As an outgrowth of this conference, research projects were established at three universities, under the leadership of individuals who were part of the conference

    1. MIT - under the leadership of Marvin Minsky

2. Carnegie-Mellon University - under the leadership of Herbert Simon and Allan Newell, later joined by Cliff Shaw.

3. Stanford - under the leadership of John McCarthy (formerly of MIT)

   These, plus Stanford Research Institute, were the major centers of AI work in the early years, and remain leading centers today. Many of the leading workers in the field were trained at one of them.

B. About 10 years later, Joseph Weizenbaum of MIT developed a program known as ELIZA. Weizenbaum wasn't attempting to create a program that would pass the Turing test - far from it. However, there were those who looked at the program as a major step toward creating such a program - an idea which horrified Weizenbaum and later drove him to become something of a critic of anthropomorphic views of computers.

   1. Weizenbaum's program actually had two parts: a general-purpose "engine", and a script. Weizenbaum's program became best known via a DOCTOR script that simulated a Rogerian psychologist (the example we will use); but many others have been written - indeed, Weizenbaum himself wrote a number of other scripts including some in German. (The engine is not language-specific).

      a) According to Weizenbaum, he chose this particular topic to "sidestep the problem of giving the program a data base of real-world knowledge" The Rogerian approach to psychotherapy basically entails reflecting back to the patient what he/she said, in the belief that, ultimately, the patient actually knows the solution to his/her problem.

      b) Let's look at this particular version of the program.

2. RUN Program - (launch PrologJ and then consult doctor.pro)

   Use the following dialogue (taken from Weizenbaum's book *Computer Power and Human Reason*)

   Men are all alike.

   They're always bugging us about something or other.

   Well, my boyfriend made me come here.

   He says I'm depressed much of the time.

   It's true; I am unhappy.

   I need some help, that much seems certain.

   Perhaps I could learn to get along with my mother.

   My mother takes care of me.

   My father.

   You are like my father in some ways.

   You are not very aggressive, but I think you don't want me to notice that.

   You don't argue with me.

   You are afraid of me.

   My father is afraid of everybody.

   Bullies.

C. Weizenbaum's experience with ELIZA literally changed the course of his life. In the introduction to his book *Computer Power and Human Reason*, he says this "My own shock was administered ... by some people who insisted on misinterpreting a piece of work I had done ... The shocks I experienced as DOCTOR became widely known and "played" were due to three distinct events: (1) A number of practicing psychiatrists seriously believed the DOCTOR program could grow into a nearly completely automatic form of psychotherapy ... (2) I was startled to see how quickly and how very deeply people conversing with DOCTOR became emotionally involved with the computer and how unequivocally they anthropomorphized it ... (3) Another widespread, and to me surprising, reaction to the ELIZA program was the spread of the belief that it demonstrated a general solution to the problem of computer understanding of natural language."

D. Let's look, for a moment, at the script.

SHOW doctor.pro

Note patterns and transformations

III. **Project**

A. Distribute project handout

B. Go over

1. Stress importance of reflection.

2. Go over script details section

3. Note requirement for initial submission of a small portion

C. Go to Lab to demonstrate mechanics