

LING 120, Fall 2017: Language and Computers

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Class outline

1. Assignment 1- comments
2. Topic 2 - Recap
3. Language Tutoring Systems - Introduction

Note: It is a class full of questions!

Assignment 1-Comments

- ▶ Unicode for Japanese: There is no single character range. The range depends on the script you are using. It needs to be mentioned along with the range.
- ▶ ASCII for Greek - does not exist in default version, unless you consider an ASCII encoding for Greek. Several of you put the decimal conversion of Hexadecimal numbers from UTF16 representation as ASCII.
- ▶ Question 2: My expectation - you observe general voice frequencies for signals, check for intensity, pitch etc for say some selected section of speech. Let us say: how is "online application" heard, and how does the signal look like for all these three samples? Is there high pitch, or high intensity (or low) for one sample vs another etc.

Topic 2: Recap

- ▶ Non-word spelling errors - causes and automatic detection
- ▶ Isolated word spelling error correction
- ▶ Contextual spelling error correction

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- ▶ Can error pattern approach be used for non-grammatical, real-word errors?
- ▶ Can I rely completely on probability based spelling correction with learner language?

Topic 3: Language Tutoring Systems

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- ▶ Did you use any computer based program, or mobile app while learning?
- ▶ Did you take any computer based tests to test your proficiency in that language?
- ▶ When you learnt your native language (at home and at school), did you have any computer games or tests or mobile apps to learn some aspects of language (grammar, vocabulary etc)?

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- ▶ What benefits does one have with computerized instruction in language learning?
- ▶ What are the advantages of computer based language exams?
- ▶ To be able to be a language tutor, what should a computer be able to do?

Computer Assisted Language Learning

Advantages:

- ▶ Individualized, personal feedback
- ▶ More and more practice with specific patterns of language, idioms of the language etc.
- ▶ No worries about limited classroom interaction with the instructor
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Questionable stuff:

- ▶ Can we trust a computer?
- ▶ Is it really possible to build such systems?
- ▶ Is it really free of bias?

What should a CALL system have?

Discuss in groups of 3, and list some features a computer based language tutor should have. (5-10min)

A typical CALL system

- ▶ Frame based CALL system: everything is pre-set by the instructors (questions, answers, feedback, screen sequence etc). So, Task of the computer is to just follow this, and do the grading.
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- ▶ How can we make such a system more dynamic, and flexible??
 - it should be able to process natural language.

Some tasks an intelligent CALL system should do

- ▶ Generate different kinds of questions
- ▶ Automatically evaluate answers
- ▶ Show different kinds of reading materials (from the web too, if needed - not limited to selected frames)
- ▶ Give feedback to learners if they make mistakes.

...

Different questions

What are the different kinds of questions to test language learning?

- ▶ Fill in the blank questions
- ▶ multiple choice
- ▶ True/False
- ▶ short answer questions
- ▶ Free text recall

... how are such questions created and evaluated?

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- ▶ Sounds straight forward... what is the issue?
- ▶ What should I choose as a blank? How many blanks should there be?
- ▶ Is evaluation really that straight forward? Let us say there is this sentence: "Today is November 5. Tomorrow is _ _ _ _ _".
- ▶ possible correct answers include: 6th, 6th November, 6th November 2017, 6/11, 11/6, 06 Nov, Nov 6, etc.
- ▶ How can the program capture all these answers as one, and as the correct one?

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Multiple choice

- ▶ Give a question with 3,4 possibilities, and ask user to choose. Straight forward, isn't it?
- ▶ What question to ask? If we ask for a fill in the blank, what options should we give?
- ▶ Options should be sufficiently confusing to test the student's ability. So not too easy and not too difficult. What to do?

Group exercise - attendance for today

- ▶ Let us take this passage *The company was founded in 2009 by Alex Shevchenko and Max Lytvyn. Brad Hoover, the company's chief executive officer, is an investor with a background in engineering who learned about Grammarly while searching for an automated proofreading tool for his own writing. Grammarly, Inc, has headquarters in San Francisco. An additional office is in Kiev.*
- ▶ If I asked you to create multiple choice questions from this, what questions will you create? and why?
- ▶ Write down your questions on a paper and the choices, and the rationale behind choosing them.
- ▶ Work in groups of 2–3 people. Write your names on the paper and return it to me. This counts as your attendance for today.

Next Class

- ▶ Tasks a CALL system need to do
- ▶ Language analysis needed to perform these tasks
- ▶ Readings: Chapter 3