Where can computational linguistics contribute to (language) teaching and learning?

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Points of Contact

- Where does language play a role in Education?
  - language is a common
    - source of information,
    - medium of instruction and tasks, and
    - basis of student assessment
  - the subject of learning in foreign language teaching
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- Computational Linguistics (CL) deals with the formal and computational modeling of language.

- Points of contact between Language Learning and CL:
  - Research questions and applications based on
    1. analysis of learner language
    2. analysis of (native) language for learners

Analysis of Learner Language

Learner corpora

- CL helps represent & annotate data, making it searchable
  - advancing understanding of Second Language Acquisition
  - identifying typical student needs
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- Our work in this area:
  - MERLIN EU LLP project (http://merlin-platform.eu)
    - identify linguistic correlates of CEFR proficiency levels
    - automatic proficiency classification (Hancke & Meurers 2013)
  - Kobalt-DaF DFG Network (http://kobalt-daf.de)
    - analysis of lexical, syntactic complexity across L1’s
  - Automatic Native Language Identification
    - (Bykh & Meurers 2012; Krivanek & Meurers 2013; Meurers, Krivanek & Bykh 2013; Bykh, Vajjala, Krivanek & Meurers 2013)
Analysis of Learner Language
Intelligent Tutoring Systems

- analysis of learner language aimed at supporting learning with immediate, individualized feedback
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- Our work in this area:
  - TAGARELA: An intelligent, web-based workbook (Amaral & Meurers 2009; Amaral, Meurers & Ziai 2011)
    http://purl.org/icall/tagarela
  - developing such systems for real-life teaching needs (Amaral & Meurers 2011)
  - learner models beyond linguistic competence
    - task and learner strategies, transfer (Amaral & Meurers 2008)
  - support activities which are meaning-based, e.g.
    - reading and listening comprehension tasks
Analysis of Learner Language
Meaning Assessment for Short-Answer Reading Comprehension

- CoMiC Project (SFB 833–A4): http://purl.org/icall/comic
- English: CREE corpus & CoMiC-EN approach
  - (Bailey 2008; Bailey & Meurers 2008; Meurers, Ziai, Ott & Bailey 2011a; Ziai, Ott & Meurers 2012; Ott, Ziai, Hahn & Meurers 2013)
- German: CREG corpus & CoMiC-DE, CoSeC approaches
  - (Meurers, Ziai, Ott & Kopp 2011b; Hahn & Meurers 2011, 2012)
- Corpus collection & annotation using WELCOME
  - (Ott, Ziai & Meurers 2012)
II. Analyzing language for learners

- **Searching for appropriate materials for learners**
  - authentic materials, e.g., selected by student
  - appropriate in readability & language forms to be learned
  - presented with visual input enhancement (or as exercises)
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- **Our work in this area:**
  - Language-Aware Search Engine (Ott & Meurers 2010)
  - Automatic readability analysis
    - for English, incl. SLA measures and applicability to web (Vajjala & Meurers 2012, 2013)
    - for German (Hancke, Meurers & Vajjala 2012)
    - to assess reading material in schoolbooks → LEAD
    - correlating linguistic and cognitive complexity → LEAD
  - Generation of visual input enhancement and exercises
    - Working with English Real-life Texts (Meurers et al. 2010)
Conclusion

- Natural Language Processing can be used to analyze learner language or language for learners.
- In tutoring systems it can address real-life needs, providing contextualized activities integrating meaning & form, opportunities for students to practice their listening, reading, and writing skills with individualized feedback to learner.
- Analyzing authentic native language it can support retrieval of documents appropriate for learners visual input enhancement fostering language awareness generation of exercises.

⇒ Integration of computational, linguistic and education expertise opens up interesting opportunities.
References


Meurers, D., R. Ziai, N. Ott & J. Kopp (2011b). Evaluating Answers to Reading Comprehension Questions in Context: Results for German and the Role of


II. Analyzing language for learners
Enhancing authentic web pages for language learners

- VIEW currently offers three types of input enhancement:
  a) color *highlighting* of the pattern or selected parts thereof
  b) pages supporting *clicking*, with automatic color feedback
  c) pages supporting practice (e.g., *fill-in-the-blank*), with automatic color feedback
Cows also 'have regional accents'

Cows have regional accents like humans, language specialists have suggested.

They decided to examine the issue after dairy farmers noticed their cows had slightly different moos, depending on which herd they came from.

John Wells, Professor of Phonetics at the University of London, said regional twangs had been seen before in birds.

The farmers in Somerset who noticed the phenomenon said it may have been the result of the close bond between them and their animals.

Farmer Lloyd Green, from Glastonbury, said: "I spend a lot of time with my ones and they definitely moo with a Somerset drawl."

Source: http://news.bbc.co.uk/2/hi/5277090.stm
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Lettermann: ‘They Don’t Like Immigrants’

Monologue | Wednesday night on “The Late Show With David Letterman” on CBS: You folks been following the big British Petroleum oil spill in the Gulf of Mexico? I’m telling you, British Petroleum has put more birds [ ? ] oil than Colonel Sanders.

I was thinking about this. Here’s what I came up with. Now, in Arizona, you know about the new immigration law, where if you don’t look like you belong there, they can run you [ ? ] the state? And they’ve got patrol cars driving around, pulling up to people, saying: “You don’t look like you belong here. Get on [ ? ]!” So the deal is, in Arizona, they don’t like immigrants. And I was thinking, well, that’s odd, because right across the river there in California, they elected one governor.