The significance of learner corpus research

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Learner corpora

- LC = language resources
  Thus LC serve different roles, depending on the purpose of their developers/users
- LCR = Intersection of corpus linguistics, second language acquisition and foreign language teaching/learning
  - LC as resources for SLA research
  - LC as resources for foreign language teaching
  - LC as resources for corpus linguistics

Historical perspectives

- Interest in learner language:
  → S. Pit Corder (1967) "The significance of learner's errors" IRAL 5: 161-170.
  - Study learner language in its own right to understand the learner's interim state of grammar system (Interlanguage)
- Various studies were conducted from late 1960s to early 1980s to collect learner errors
- But most of the data were discarded after collecting error samples.
  → No idea of sharing the data with others

Two commercial LC

- Longman Learner's Corpus
  - Originally developed by Michael Rundell for Longman dictionaries
  - The size was big (10 million words) back in 1990s
  - The data was not used until 1995, when major monolingual English learner's dictionaries were revised using corpora (OALD5, LDOCE3, COBUILD2, CIDE).
- Cambridge Learner Corpus
  - This is also in-house resources for dictionaries originally.
  - Later more widely used for materials development
- These two corpora are for lexicographical purposes, thus the size does matter.
- These two corpora were compiled with pedagogical applications in mind, not for SLA research.

International Corpus of Learner English (ICLE)

- The project was launched as an additional component of the International Corpus of English (ICE) in the early 1990s.
- The original purpose of the ICE project was to compare regional varieties of English (e.g. BrE, AmE, AusE, etc.).
- A corpus of "learner" English was added to this to compare it against NS English, which is why advanced learners were selected.

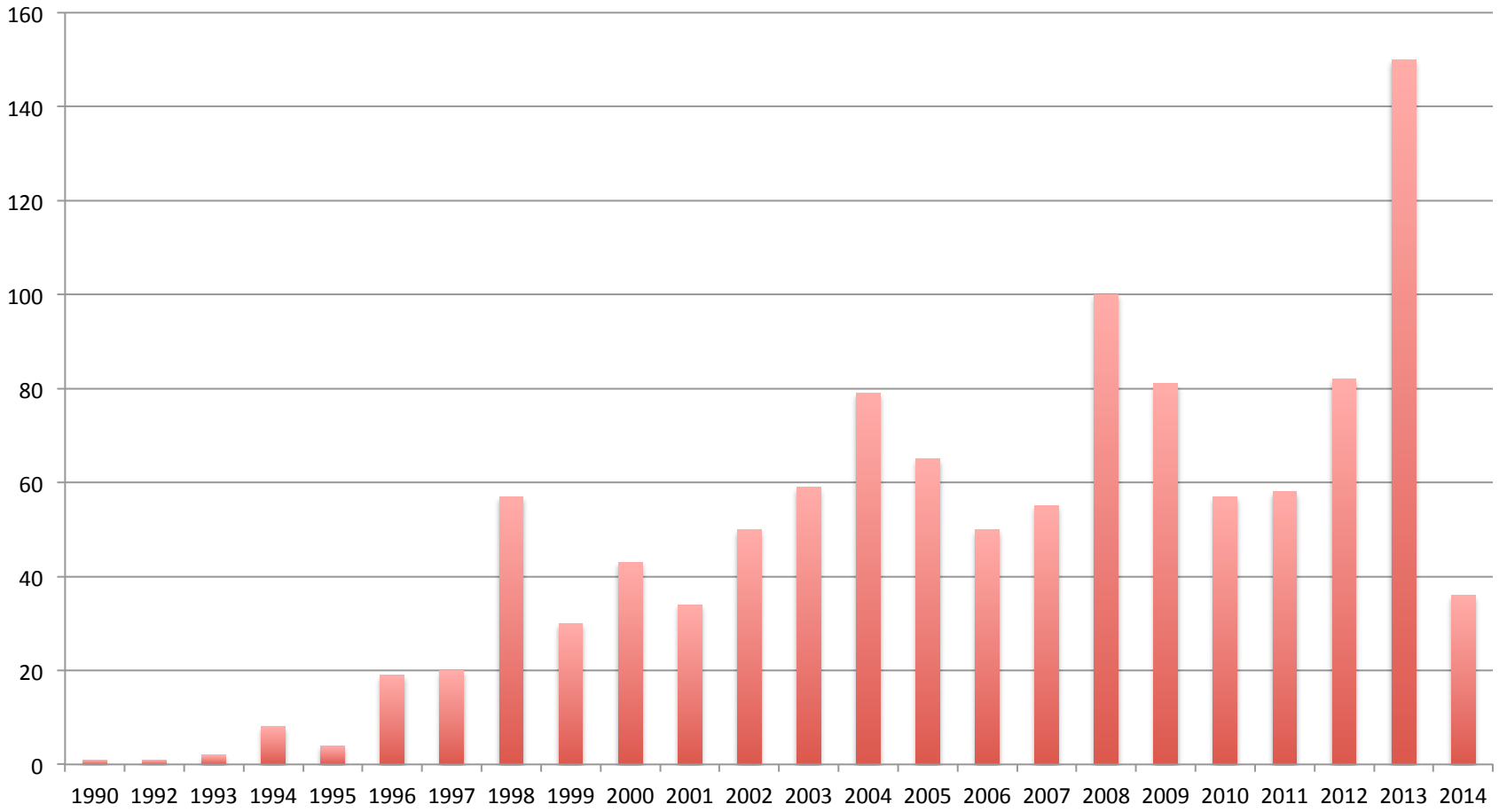
ICLE's contribution

- Proposed strict design criteria for compiling learner corpora
- Formed an international team of contributors just like representatives of ICE
- Proposed the potential impact of corpus linguistics in the study of learner language:
  - Contrastive Interlanguage Analysis (Granger 1996)
  - Computer-aided Error Analysis
- Lead to other projects to supplement ICLE:
- Spoken (LINDSEI), longitudinal (LONGDALE), and other L2 (FRIDA), etc.

ICLE's contribution (2)

- Provide the opportunities for evaluating the quality of LC from various perspectives
- ICLE has become a good example of what is missing:
  - Need for bigger data (size: cf. CLC)
  - Need for more control (cf. essay task)
  - Need for more developmental perspectives
  - Need for spoken data
  - Need for more varieties of written tasks
  - Need for longitudinal data
  - Need for publicly available error-tagged corpora
  - Need for more data tuned to specific SLA hypotheses

LC bibliography (n=1141)



Various LC constructed

- List of learner corpora at Louvain (n = 140):
  - More varieties of spoken vs. written data
  - More varieties of developmental/longitudinal data
  - More varieties of elicitation tasks
  - More varieties of target languages
  - More complex error annotation schemes
- Spanish learners → 9 projects listed
- The development looks healthy, overall, but the impact of LC in SLA research is yet to be seen (Tono 2015).

Mere replications…?

- Some camps use a very small corpus of learners with detailed error annotations.
- This reminds me of the old times when error analysis people did all sorts of error taxonomies and diagnosis.
- If the data analysis does not show the strength of corpus linguistic approach, then what people are doing now is the same as 40 years ago.

Back in the 60s & 70s

- Duskova (1969):
  - 50 Czech learners of English; each wrote 3 essays
  - Distinguish “errors” from “mistakes”
  - Classify errors into 9 categories with frequencies
  - A small scale study, but a very similar approach of what we are doing today using LC.
- Etherton (1977): How much data is needed?
  - 4,000 -6,000 examples to get the overall impression of performance
  - 20,000 examples will provide reliable sources of information.
  - No clear empirical evidence

New perspectives: More sophisticated data analysis

- Traditional approach:
  - Simply count frequencies between NS vs. NNS or between different NNS groups
  - Compare the frequencies across groups using significance tests
- Recent approaches
  - Overuse/underuse/misuse → class to be explained
  - Linguistics/task/learner variables as predictors
  - Various statistical approaches are used to build a model of cause-effect relationship or the best predictive model (e.g. regression, discriminant analysis, support vector machine, random forest). (Gries & Deshores 2014; Tono 2013)

New perspectives: More fine-grained error annotation

- Diaz-Negrillo (2007)
- Lozano & Mendikoetxia (2013) : CEDEL2
  - ILA Workshop in Poznan, 2014
- Association rule mining (Tono 2014)
  - If X, then Y. → association rule
  - Association rule mining between the knowledge of grammatical items as prerequisites to other items

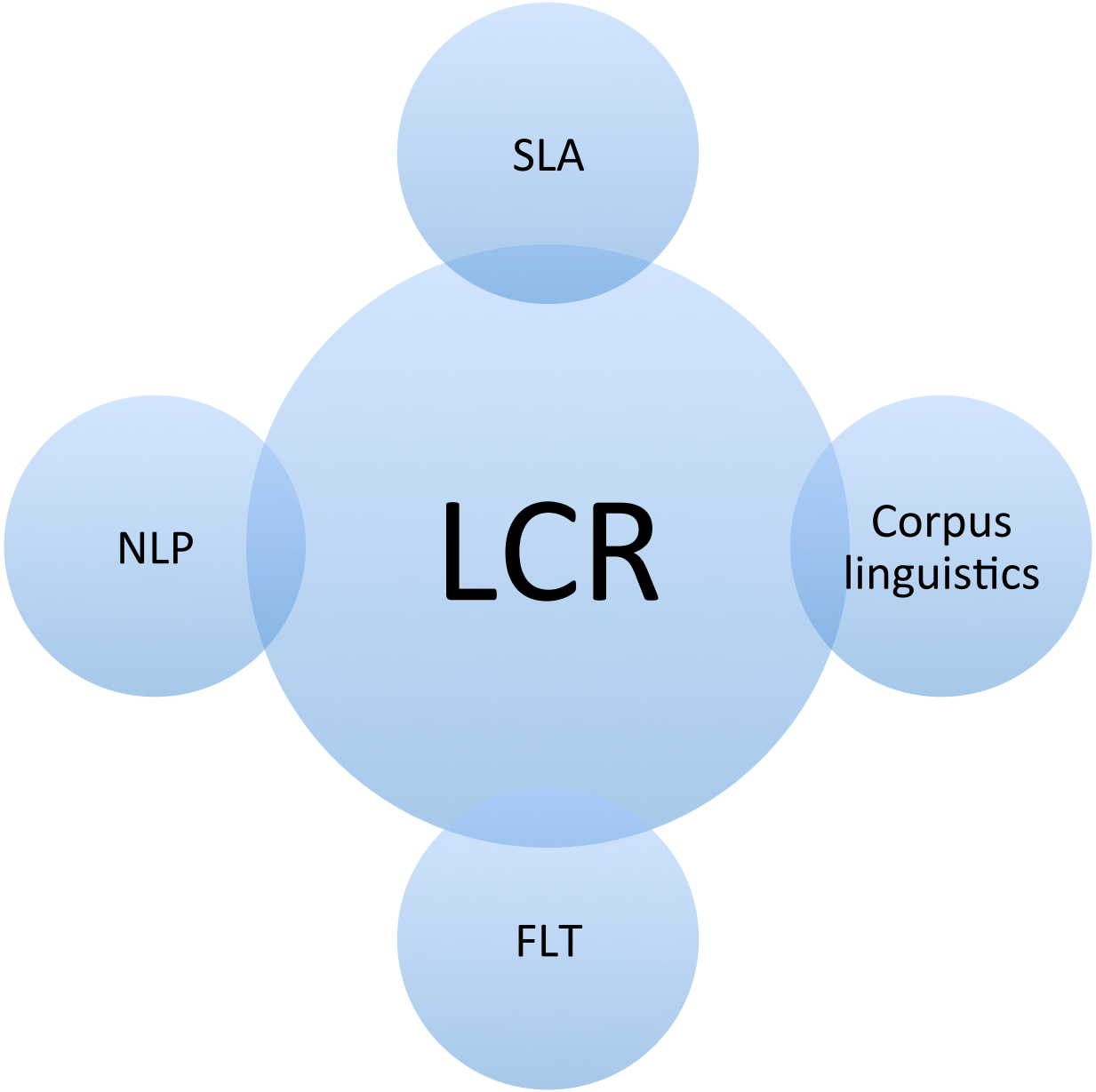
New perspectives: Using big data for LCR

- Lang8 (http://lang-8.com)
  - Free SNS
  - More than 90 target languages from 190 countries
  - Posting writing and corrections made by NS
- EFCamDat (http://www.ling.cam.ac.uk/ef-unit/corpus.html)
  - EF Education First (English language school)
  - 30 million words
  - Learners of English with various L1s
- NLP communities use these big data to do machine learning of automatic error identification and correction

New perspectives: Involvement of NLP communities

- Growing interest in NLP applications in language learning, especially language testing
- CALICO workshop on automatic analysis of learner language
- ETS/ Cambridge English Assessment/ Pearson
- Commercially-led NLP shared tasks (ACL)
  - Automatic error detection & correction
  - Automatic classification of CEFR-level texts
  - Automatic detection of NS vs. NNS texts
  - Automatic identification of writers' L1s

LCR: multiple use of the data



LCR for teaching

- Syllabus design: “criterial features” (English Profile) for CEFR levels
- Materials design: “Common learner errors”
  - Dictionaries (Macmillan/ Longman/ Cambridge)
  - Coursebooks (Touchstone)
- Local learner corpora (Mukherjee 2007)
  - Action research-oriented use of LC

LCR for learning

- Online writing/speaking session
  - Possibility of data mining
- Analysis of LC for individuals can be integrated into the e-portfolio
  - Quantitative & qualitative assessment of progress
- ICALL
  - Integrating learner data to monitor the progress, identify & diagnose the problems, provide the necessary remedial tasks

LCR for assessment

- Automatic scoring of speech & writing
- Automatic error detection & correction
- Data mining of exam data
- Longitudinal analysis of an individual
- Multi-modal analysis of an individual's competence in line with the CEFR descriptors

Conclusions

- LCR has been growing into an independent research discipline, but needs further effort in terms of its relevance to existing SLA theories and methodology.
- LCR will continue to influence areas such as foreign language learning/teaching and language assessment.
- The new approaches in LCR show a promising direction.
- The independent volume for learners of L2 Spanish shows a clear indication of positive aspects of the growth of LCR.

THANK YOU!