Computational Psycholinguistics

The **Last** Tutorial !
(Finally)

Garance PARIS

Winter Semester 2011/2012

Assignment

*"Discuss the cognitive plausibility
of the parsers you built
throughout the first part of term."*

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Some criteria:

- incrementality,
- complexity,
- …

Memory Load

	Space Requirement		
People	constant	linear	constant
Top-Down	linear	linear	constant
Bottom-Up (Shift-Reduce)	constant	linear	linear
Left-Corner arc-standard	constant	linear	linear
Left-Corner arc-eager	constant	linear	constant

Constant   Space-requirement (and thus memory load and
            processing difficulty) does not vary depending
            on the length of the sentence/the number of
            embeddings

Linear   There is a linear relationship between the number
         of embeddings and memory load

$y = ax + b$, x: number of embeddings

In our COGENT models, b includes displaying
and reading words, which is constant.

Gathering Data

1. Add buffers/sinks to the model to save the necessary data (or send everything to *Output*)

2. Parse each type of structure (3) with each parser (4), varying the number of embeddings

   (see tutorial page for some potential stimuli, a lexicon, and a grammar from which to get started, or come up with your own; they need not be English, but if not, your report must include a translation)

3. Add actions to your rules that output the (maximum size of the) stack depending on the number of embeddings

4. Evaluate the data using a script or a spreadsheet

5. Show that your results match the table on the previous slide

Report

1. Submit a short report (3–5 pages) presenting your results, and including other plausibility critera

2. Include in your report all the materials you used, and attach an archive with your four parsers (only) (please re-initialize each model before archiving!)

3. Bonus: Try to link COGENT cycles (run times) in the LC arc-eager parser to human reading times as shown in the table