*LSA.365 | Variation in Optimality Theory, Arto Anttila*
*Mon, Thu 8:00-9:45am, Education 206*

**Assignment #1: Factorial Typologies and T-Orders**

(a)     Download and install OTSoft and T-Order-Generator.
(b)     Make Excel files with the following two toy grammars in the OTSoft format.

M:VOI          No obstruent voicing.
F:VOI          Be faithful to underlying voicing.
F/O:VOI        Be faithful to underlying voicing in syllable onsets.

Grammar A

| INPUTS | OUTPUTS | M:VOI | F:VOI |
|--------|---------|-------|-------|
| da     | da      | *     |       |
|        | ta      |       | *     |
| ad     | ad      | *     |       |
|        | at      |       | *     |

Grammar B

| INPUTS | OUTPUTS | F/O:VOI | M:VOI | F:VOI |
|--------|---------|---------|-------|-------|
| da     | da      |         | *     |       |
|        | ta      | *       |       | *     |
| ad     | ad      |         | *     |       |
|        | at      |         |       | *     |

(c)     Compute the factorial typologies for both grammars.
(d)     Compute the T-orders for both grammars.
(e)     What is the generalization (in plain English)?

**Assignment #2: The Finnish Genitive Plural**

(a)     Replicate Boersma and Hayes' (2001) Stochastic OT reanalysis of Anttila's (1997) data. Do you get similar numbers?
(b)     Compute the T-order for the Finnish grammar, first with no rankings and then with Anttila's rankings.
(c)     Which quantitative relationships in the Finnish data are universal? Which are language-specific?
(d)     How successful is the analysis in terms of precision and recall, without rankings and with Anttila's rankings?

**Assignment #3: The Gradient Phonotactics of English**

McClelland and Vander Wyk (2006) present the following quantitative facts on English rhymes:

Per Vowel Counts for Rhymes Containing Stop Consonants

| VOICED | | |
|---|---|---|
| CODA | LONG | SHORT |
| d | 12.2 | 14.4 |
| g | 1.2 | 15.4 |
| b | 2.4 | 13.0 |
| UNVOICED | | |
| CODA | LONG | SHORT |
| t | 19.2 | 22.6 |
| k | 13.5 | 21.6 |
| p | 8.7 | 17 |

(a) Propose a set of OT constraints on English rhyme structure.
(b) Compute the T-Order based on your constraints.
(c) How successful is your analysis in terms of precision and recall?

**Downloading, installing, and running the programs**

OTSoft (Hayes, Tesar and Zuraw 2003) can be downloaded from

http://www.linguistics.ucla.edu/people/hayes/otsoft/

When running OTSoft, select the options *Include Ranking Arguments*, *Assume Transitivity of Domination* and *Include Illustrative Minitableaux*. For the purposes of the T-Order Generator, you will need to construct the factorial typology file. This file is conventionally named MYFILEDraftOutput.txt.

T-Order Constructor was programmed by Curtis Andrus in the Python programming language. The program can be downloaded from

http://www.stanford.edu/~anttila/research/torders/torder.zip
http://www.stanford.edu/~anttila/research/torders/t-order-manual.pdf

After downloading T-Order Generator, take the following steps.

- Unzip the program file.
- Run the program by clicking on tordergui.exe.
- Click on File and select Open Factorial Typology.

You can learn more about T-Order Generator by reading Anttila and Andrus 2006 and the README.txt file which should appear in the directory where you unzip the program.