\LaTeX{} for Linguists

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Spring 2008
Linguistic examples

gb4e

**Recommended package (if you use glosses): gb4e+.sty**
(by Hap Kolb and Craig Thiersch)
http://www.ctan.org/tex-archive/macros/latex/contrib/gb4e/

**A simple example**

(1) When shall we three meet again, in thunder, lightning or in rain?

and how it's created:

\begin{exe}
\ex When shall we three meet again, in thunder, lightning or in rain?
\end{exe}
Glosses and judged examples

(2) * Stolz ist er auf seine Kinder gewesen.
   proud is he of his children been
   ‘He was proud of his children.’

\begin{exe}
\ex[*]{
   \gll Stolz ist er auf seine Kinder gewesen. \\
   proud is he of his children been
   \mytrans{He was proud of his children.}}
\end{exe}
Multiple gloss lines and wider judgements

(3) **? Stolz ist er auf seine Kinder gewesen
   proud is he of his children been
   some other glosss for these
   worden.
   being
   words

\begin{exe}\judgewidth{**?}
\ex[**?]\glll Stolz ist er auf seine Kinder gewesen worden.
  proud is he of his children been being\\
  some other glosss {} for these {} words\\
\end{exe}

- Illustrates \glll and uses \judgewidth{**?} to line up wider judgements correctly.
- Use \exewidth{(000)} to line up example numbers numbers wider than two digits.
Examples with subexamples

(4) a. Verkaufen will er das Pferd.
    sell wants to he the horse
    ‘He wants sell the horse.’

    b. Stolz ist er auf seine Kinder gewesen.
    proud is he of his children been
    ‘He was proud of his children.’

\begin{exe}
\begin{xlist}
\ex\gll Verkaufen will er das Pferd.\\
    sell {wants to} he the horse\\
    \mytrans{He wants sell the horse.}
\ex\gll Stolz ist er auf seine Kinder gewesen.\\
    proud is he of his children been\\
    \mytrans{He was proud of his children.}
\end{xlist}
\end{exe}
IPA symbols

Recommended package: `tipa.sty`
(by Rei Fukui)
http://www.ctan.org/tex-archive/fonts/tipa/

- \textipa{f"n3tIks}
- \{\textipaencoding f"n3tIks\}
- \begin{IPA}f"n3tIks\end{IPA}

Useful chart:
http://ling.osu.edu/events/lcc/tutorials/tipachart/tipachart.pdf
**Recommended package:** OTtablex.sty  
(by Nathan Sanders)  
http://wso.williams.edu/~nsanders/OTtablex/

<table>
<thead>
<tr>
<th></th>
<th>Max</th>
<th>Dep</th>
<th>*CODA</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>da</td>
<td>*!</td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>dapa</td>
<td></td>
<td>*</td>
</tr>
<tr>
<td>c</td>
<td>dap</td>
<td></td>
<td>*</td>
</tr>
</tbody>
</table>
\begin{center}
\begin{OTtableau}{3}
\OTsolids{2}\OTdashes{1}
\OTtoprow [dap] \textsc{Max}, \textsc{Dep}, *
\textsc{Coda}
\OTcandrow {da} *!, ,
\OTcandrow {dapa} , *,!
\OTcandrow []\textsc{Hand} dap , , *
\end{OTtableau}
\end{center}
Syntactic trees

qtree

**Recommended package:** `qtree.sty`
(by Jeffrey Mark Siskind)
http://www.ling.upenn.edu/advice/latex/qtree/

```
TP
   /\      /
  /  \    /  \     /
DP   T'   VP   V'  /
   |      |      |    /
   KP     D'     T  |
   /\     /\     /\   /\  \
  /  \   /  \   /\  /\  /\ \
DP  K'  D   NP -ed VP  |
   /\  /\ /\   /\ /\ /\ /\  |
  /\ /\ /\ /\ /\ /\ /\ /\ /\ /\  |
The queen K' K 's D \_poss consort |
                          /\         |
                           /\         |
                            V        |
                             \       |
                              \     |
                               \   |
                                \ |
                                 \ |
                                  \ | notice |
                                   \ |
                                    \ me |
```
Source code for tree

\small

}
Attribute-Value Matrices (AVMs)

**Recommended package:** `avm.sty`  
(by Chris Manning)  
http://www.essex.ac.uk/linguistics/clmt/latex4ling/avms/

**On the extras:**

- Left hand side (features) and right hand side (value) of an AVM are automatically typeset as small caps and italics, respectively.

- General commands for changing size of AVMs:
  - \texttt{\HugeAvmFonts, \hugeAvmFonts, \LargeAvmFonts, \largeAvmFonts, \regAvmFonts, \smallAvmFonts, \tinyAvmFonts}

- Automatically changes size to \texttt{\smallAvmFonts} in footnotes.
AVMs in active mode

Choosing the active option (default):
\avmoptions{active,center}

\begin{avm}
\tp{some-type}\\
\textup{feat-a} & @10 \tp{type-a}\\
\textup{feat-aa} & \textup{type-aa}\\
\textup{feat-ab} & <[\text{synsem}|\text{loc}|\text{cat}|\text{head} & \textup{type-aba}]\\
\textup{feat-abc} & \texttt{type-abc}, \texttt{NP}>]\\
\textup{feat-b} & @10 \texttt{type-b}\\
\end{avm}
AVMs in arguments

The active mode cannot be used in (most) command arguments. Switch to inactive option with \avmoptions{center} and use \[
\]\ | < > @ instead of [ ] | < > @

\[
\begin{array}{c}
\text{FEAT-A} \\ \text{FEAT-AB} \\ \text{FEAT-B}
\end{array}
\begin{array}{c}
\text{type-a} \\ \text{type-aa} \\ \text{type-aba}
\end{array}
\begin{array}{c}
\text{FEAT-AA} \\ \text{SYNSEM|LOC|CAT|HEAD} \\ \text{FEAT-ABC}
\end{array}
\begin{array}{c}
10 \\ \text{type-abc} \\ \text{type-b}
\end{array}
\begin{array}{c}
\text{NP}
\end{array}
\]
AVMs in arguments (cont.)

```latex
{\avmoptions{center
\begin{avm}
\[\tp{some-type}\\
  \text{feat-a} & \@{10}\\
  \text{feat-aa} & \text{type-aa}\\
  \text{feat-ab} & \langle\text{synsem|loc|cat|head}\\
  & \text{type-aba}\\
  \text{feat-abc} & \text{tpv{type-abc}},\\
  \text{\textup{NP}}\>\]\\
  \text{feat-b} & \@{10}\text{type-b}\\
\end{avm}}}}
```
Recommended class: beamer
(by Till Tantau)
http://latex-beamer.sourceforge.net/

Declare a file to be a beamer file by using:
\documentclass{beamer}

- Each slide will have the form

\begin{frame}
\frametitle{(Optional) title of a slide}
\framesubtitle{Optional subtitle}
Contents go here.

\end{frame}
Creating overlays

- Beamer allows you to pause between texts
Creating overlays

- Beamer allows you to pause between texts
- and to do trickier overlays
Creating overlays

- Beamer allows you to pause between texts
- and to do trickier overlays
- some stuff

- what?
Creating overlays

- Beamer allows you to pause between texts
- and to do trickier overlays
- some stuff
- other stuff

- what?
Creating overlays

- Beamer allows you to pause between texts
- and to do trickier overlays
- some stuff

  ▶

  ▶ hmm.
- what?
The code for the previous slide looks like this:

\begin{itemize}
\item Beamer allows you to pause between texts\pause
\item<2-> and to do trickier overlays
\item<3-> with timing and so forth
\item\only<4>{other stuff can come now}
\item<5-> and it’s pretty cool (naturally)
\item<3-> timing!
\end{itemize}
Blocks

Blocks split text horizontally into headed sections

1\textsuperscript{st} Block Heading

Check this block out!

2\textsuperscript{nd} Block Heading

Check this next block out!

\begin{block}{1\textsuperscript{st} Block Heading}
Check this block out!
\end{block}

\begin{block}{2\textsuperscript{nd} Block Heading}
Check this next block out!
\end{block}
Some further notes

- To use verbatim text requires a special designation for each slide

\begin{frame}[fragile]

- To include sectioning (as seen on the right), use the standard \section and \subsection commands

- To turn your presentation into a printable version, change the beginning of your file to \documentclass[handout]{beamer}
  - Can use the pdfnup program to create, e.g., a 2x3 layout (could also use \usepackage{pgfpages} within the file)
Recommended document class: `graphicx.cls`  
(by David Carlisle)  

Basic procedure:

- Add to preamble: `\usepackage{graphicx}` (or `\usepackage[pdftex]{graphicx}` if using pdflatex)
- Include graphics with `\includegraphics{myfilename}` which requires a `myfilename.eps` in the same directory.

To convert between graphics file versions, you can use the command `convert`. For example,  
`convert myfile.jpg myfile.eps` or `convert myfile.gif myfile.eps`.  

Graphics (creating them)

\texttt{pgf}

You can create graphics directly within \LaTeX. \textbf{Recommended package}: \texttt{pgf.sty} (by Till Tantau)

http://sourceforge.net/projects/pgf/

\begin{pgfpicture}{0cm}{0cm}{5cm}{2cm}
\pgfrect[stroke]{\pgfpoint{0cm}{0cm}}{\pgfpoint{2cm}{10pt}}
\pgfcircle[fill]{\pgfpoint{3cm}{1cm}}{10pt}
\end{pgfpicture}

\begin{verbatim}
\begin{pgfpicture}{0cm}{0cm}{5cm}{2cm}
\pgfrect[stroke]{\pgfpoint{0cm}{0cm}}{\pgfpoint{2cm}{10pt}}
\pgfcircle[fill]{\pgfpoint{3cm}{1cm}}{10pt}
\end{pgfpicture}
\end{verbatim}
tikz is a front-end package for \texttt{pgf}, which provides more high-level functions

\begin{center}
\usepackage{tikz}
...
\begin{tikzpicture}
\draw (1,0) -- (0,1) -- (-1,0) -- (0,-1) -- cycle;
\end{tikzpicture}
\end{center}

\begin{verbatim}
\begin{center}
\usepackage{tikz}
...
\begin{tikzpicture}
\draw (1,0) -- (0,1) -- (-1,0) -- (0,-1) -- cycle;
\end{tikzpicture}
\end{center}
\end{verbatim}
Dependency graphs with tikz (preamble, 1)

In the preamble:

% macros for dependency graphs:
\usepackage{tikz}
\usetikzlibrary{matrix,arrows,backgrounds}

% define style for dependency labels (in row 1):
\tikzstyle{row 1}=[font=\scriptsize]
% define style for transliteration (in row 3):
\tikzstyle{row 3}=[font=\itshape]
% define style for extra row of labels:
\tikzstyle{row 4}=[font=\scriptsize]

% define environment for layout of dependency graph:
\newenvironment{dependencyGraph}{\begin{tikzpicture}[baseline=(X.base)]
  \matrix (mygraph) [matrix of nodes,nodes in empty cells, 
    nodes={anchor=base,text height=1.1ex,text depth=.1em}]
}{\end{tikzpicture}}
Finishing the preamble:

% define macro for drawing the arcs of the dependency graph:
\newcommand{\drawArcs}[1]{%
  \foreach \from/\to in #1
    {\drawArc{\from}{\to}{4pt}{0pt}}}

\newcommand{\drawArc}[4]{%
  \ifnum #1>#2
    \draw [-stealth',semithick] ([xshift=-#3]mygraph-1-#1.north) to
    [looseness=1.2,bend right=50] ([xshift=-#4]mygraph-1-#2.north);
  \else
    \draw [-stealth',semithick] ([xshift=#3]mygraph-1-#1.north) to
    [looseness=1.2,bend left=50] ([xshift=#4]mygraph-1-#2.north);
  \fi
}
Dependency graphs with tikz (main body)

\begin{dependencyGraph}
\{ DT & SS & & DT & OO \\
|\(X)\| Deras & utbildning & tar & 345 & dagar \\
\hspace{1cm} Their & education & takes & 345 & days \\
PO & VN & VV & RO & NN \}
\drawArcs{{2/1, 3/2, 3/5, 5/4}}
\end{dependencyGraph}
Bibliography formatting

natbib

**Recommended package**: natbib.sty


(The following slides are mostly copied from the documentation.)

**Features:**

- Compatible with the standard bibliographic style files: plain, harvard, apalike, chicago, astron, authordate, natbib.
  Note: One can use `tex makebst` to create one’s own .bst file for particular bibliography layout needs!
- Two basic citation commands: \cite{t} and \citep for *textual* and *parenthetical* citations, respectively. Takes one or two optional arguments to add some text before and after the citation.
Basic citations

\citep{jon90} ⇒ Jones et al. (1990)
\citep[ch. 2]{jon90} ⇒ Jones et al. (1990, ch. 2)
\citet{jon90} ⇒ (Jones et al., 1990)
\citet[ch. 2]{jon90} ⇒ (Jones et al., 1990, ch. 2)
\citep[see]{jon90} ⇒ (see Jones et al., 1990)
\citep[see][ch. 2]{jon90} ⇒ (see Jones et al., 1990, ch. 2)
\citet*{jon90} ⇒ Jones, Baker, and Williams (1990)
\citep*{jon90} ⇒ (Jones, Baker, and Williams, 1990)
Multiple citations

Multiple citations may be made by including more than one citation key in the \cite command argument.

\cite{jon90,jam91} ⇒ Jones et al. (1990); James et al. (1991)
\citep{jon90,jam91} ⇒ (Jones et al., 1990; James et al. 1991)
\citep{jon90,jon91} ⇒ (Jones et al., 1990, 1991)
\citep{jon90a,jon90b} ⇒ (Jones et al., 1990a,b)
Suppressed parentheses

\citealt is the same as \citet but without parentheses. (Similarly, \citealp is \citep without parentheses.) Multiple references, notes, & starred variants also exist.

\citealt{jon90} \Rightarrow Jones et al. 1990
\citealt*{jon90} \Rightarrow Jones, Baker, and Williams 1990
\citealp{jon90} \Rightarrow Jones et al., 1990
\citealp{jon90} \Rightarrow Jones, Baker, and Williams, 1990
\citealp{jon90,jam91} \Rightarrow Jones et al., 1990; James et al., 1991
\citealp[pg.˜32]{jon90} \Rightarrow Jones et al., 1990, pg. 32
\citetext{priv.\ comm.} \Rightarrow (priv. comm.)

The \citetext command allows arbitrary text to be placed in the current citation parentheses. This may be used in combination with \citealp.
Partial citations

In author–year schemes, it is sometimes desirable to be able to refer to the authors without the year, or vice versa. This is provided with the extra commands

\citeauthor{jon90} \Rightarrow Jones et al.
\citeauthor*{jon90} \Rightarrow Jones, Baker, and Williams
\citeyear{jon90} \Rightarrow 1990
\citeyearpar{jon90} \Rightarrow (1990)
Forcing upper cased names

If the first author’s name contains a von part, such as “della Robbia”, then \cite{dRob98} produces “della Robbia (1998)”, even at the beginning of a sentence. One can force the first letter to be in upper case with the command \Citet instead. Other upper case commands also exist.

\cite{dRob98} \quad \Rightarrow \quad \text{della Robbia (1998)}
\Citet{dRob98} \quad \Rightarrow \quad \text{Della Robbia (1998)}
\Citep{dRob98} \quad \Rightarrow \quad \text{(Della Robbia, 1998)}
\Citealt{dRob98} \quad \Rightarrow \quad \text{Della Robbia 1998}
\Citealp{dRob98} \quad \Rightarrow \quad \text{Della Robbia, 1998}
\Citeauthor{dRob98} \quad \Rightarrow \quad \text{Della Robbia}

These commands also exist in starred versions for full author names.
Selecting citation style and punctuation

A \bibpunct declaration has six mandatory plus one optional argument:

1. opening bracket for citation ”(”
2. closing bracket ”)”
3. citation separator (for multiple citations in one \cite) ”;”
4. n for numerical styles, s for superscripts, anything else for author-year ”author-year”
5. punctuation between authors and date
6. punctuation between years (or numbers) when common authors missing ”,”

opt. character coming before post-notes.

Example: \bibpunct[:]{()}{,}{a}{}{,}
Various other packages

- To make a poster, consider sciposter
  http://www.ctan.org/tex-archive/macros/latex/contrib/sciposter/
- To develop exams consider exam
  http://www-math.mit.edu/~psh/#ExamCls