



## L<sup>A</sup>T<sub>E</sub>X for Linguists

└ 4<sup>L</sup> 06: Examples & glossing

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## Reader

**L<sup>A</sup>T<sub>E</sub>X Reader** (Freitag & Machicao y Priemer 2019):  
<https://doi.org/10.13140/RG.2.2.29299.27682>

**Exercises and Handouts:**  
<https://www.linguistik.hu-berlin.de/de/staff/amyp/latex>

## Package: gb4e

There are different packages for examples:

- linguex
- gb4e
- langsci-gb4e
- ...

gb4e has **more options** than linguex, but it re-defines commands causing problems with the math mode (with  $\_$ ) and other packages (e.g. forest).

Load gb4e as one of the **last packages**:

```
\usepackage{gb4e}
\usepackage[hidelinks]{hyperref}
```

Similar to the `itemize` environment, use an **exe environment** for examples, putting every sentence/phrase in an `\ex item`.

```
\begin{exe}
\ex This is an example.
\ex This is a sentence whose only purpose is to show how easy examples with \LaTeX\ work.
\end{exe}
This is a sample text. The only purpose of this text is to show how to work with \LaTeX\ examples.
```

This is sample text with no meaning.

- (1) This is an example.
- (2) This is a sentence whose only purpose is to show how easy examples with  $\LaTeX$  work.

This is a sample text. The only purpose of this text is to show how to work with  $\LaTeX$  examples.

For **embedded example levels**, use the `xlist environment`.

```
\begin{exe}
\ex This is an example.
\ex This is a sentence whose only purpose is to show how easy examples with \LaTeX\ work.
\begin{xlist}
\ex This is an example on a new level.
\ex This is a sentence whose only purpose is to show how easy examples with \LaTeX\ work.
\end{xlist}
\ex This is an example again on the first level.
\end{exe}
```

- (3) This is an example.
- (4) This is a sentence whose only purpose is to show how easy examples with  $\LaTeX$  work.
  - a. This is an example on a new level.
  - b. This is a sentence whose only purpose is to show how easy examples with  $\LaTeX$  work.
- (5) This is an example again on the first level.

For **embedded example levels inside embedded examples**, keep using the `xlist environment`.

```
\begin{exe}
\ex 1st level: arabic numerals
\ex 1st level: arabic numerals
\begin{xlist}
\ex 2nd level: letters
\ex 2nd level: letters
\begin{xlist}
\ex 3rd level: roman numerals
\ex 3rd level: roman numerals
\end{xlist}
\ex 2nd level: letters
\end{xlist}
\ex 1st level: arabic numerals
\end{exe}
```

- (6) 1st level: arabic numerals
- (7) 1st level: arabic numerals
  - a. 2nd level: letters
  - b. 2nd level: letters
    - i. 3rd level: roman numerals
    - ii. 3rd level: roman numerals
  - c. 2nd level: letters
- (8) 1st level: arabic numerals

Embedding examples with **letter numbering** in **arabic numbering**:

```
\begin{exe}
\ex %empty!
\begin{xlist}
\ex This is an example.
\ex This is a different example.
\end{xlist}
\end{exe}
```

- (9) a. This is an example.
- b. This is a different example.

**Cross-references** with `label` and `ref`:

```
\begin{exe}
\ex \label{ex:Arabic}%empty!
\begin{xlist}
\ex This is an example.
\label{ex:Letter1}
\ex This is a different example.
\label{ex:Letter2}
\end{xlist}
\end{exe}
```

See the following cross-references: (10), (10a), and (10b).

- (10) a. This is an example.
- b. This is a different example.

## Exercise I

- Load the package gb4e and
- Replicate the following examples:

- (11) Colorless green ideas sleep furiously.
- (12) Furiously sleep ideas green colorless.
- (13) a. Have you a book on modern music?  
b. The book seems interesting.
- (14) a. Read you a book on modern music?  
b. The child seems sleeping.

## Exercise I

- (15) This is a sentence.
- a. This is a sentence with a modifier.
- b. This is a sentence that has a relative clause.
- i. This is a sentence that has a relative clause that has a relative clause.
- ii. a phrase with a relative clause with a relative clause
- c. This is a modified sentence.
- (16) This is a sentence with a sentence.

We refer to the following examples: (11), (13), (14b), (15), (15b-ii), and (15c).

## Acceptability judgements

For acceptability/grammaticality judgements, use the **square brackets** and enclose the sentence in **curly brackets**.

```
\begin{exe}  
  \ex[*]{These ungrammatical example is.}  
  \ex[] {This example is grammatical.}  
  \ex[\#]{colorless green idea}  
  \ex This example is grammatical.  
\end{exe}
```

- (17) \* These ungrammatical example is.
- (18) This example is grammatical.
- (19) # colourless green idea
- (20) This example is grammatical.

## Exercise I

- Put acceptability judgements to your sentences from before.
- Please check the alignment of your sentences.
- Are the labels still working? The syntax for labelled examples with acceptability judgements is: `\ex[*]{example}\label{ex:ID}`

- (21) # Colorless green ideas sleep furiously.
- (22) \* Furiously sleep ideas green colorless.
- (23) a. Have you a book on modern music?  
b. The book seems interesting.
- (24) a. \* Read you a book on modern music?  
b. \* The child seems sleeping.

## Exercise I

- (25) This is a sentence.
- This is a sentence with a modifier.
  - This is a sentence that has a relative clause.
    - This is a sentence that has a relative clause that has a relative clause.
    - a phrase with a relative clause with a relative clause
  - This is a modified sentence.
- (26) ? This is a sentence with a sentence.
- Put the first two examples (21) and (22) at the end. Recompile and enjoy the consistency!

## Glossing

- The `\ex` line remains empty
- use `\gll` and write your **example** in that line; **end** it with `\`
- write the **glosses**, and **end** this line with `\`;
- optionally**, give a **translation** `\glt`.

```
\begin{exe}  
\ex  
\gll Jeder Bauer, der einen Esel besitzt, schlägt ihn. \\  
every farmer that a.\textsc{acc} donkey owns beats it.\textsc{acc}\  
\glt 'Every farmer who owns a donkey beats it.' \hfill \citep{Geach62}  
\end{exe}
```

- (27) Jeder Bauer, der einen Esel besitzt, schlägt ihn.  
every farmer that a.ACC donkey owns beats it.ACC  
'Every farmer who owns a donkey beats it.' (Geach 1962)

Use **curly brackets** to group elements that are being **glossed as a unit**.

```
\begin{exe}  
\ex  
\gll {Multiword expression} -s can be glossed too.\  
Mehrwortlexem -e.\textsc{pl} können sein glossiert auch\  
\glt 'Auch Mehrwortlexeme können glossiert werden.'  
\ex  
\gll dass Peter$_{1}$ $ $_{1}$ $ $_{2}$ $ schläft$_{2}$ $\  
that Peter {} {} sleeps\  
\glt 'that Peter is sleeping'  
\end{exe}
```

- (28) Multiword expression -s can be glossed too.  
Mehrwortlexem -e.PL können sein glossiert auch  
'Auch Mehrwortlexeme können glossiert werden.'
- (29) dass Peter<sub>1</sub> t<sub>1</sub> t<sub>2</sub> schläft<sub>2</sub>  
that Peter {} {} sleeps  
'that Peter is sleeping'

*Leipzig Glossing Rules* (cf. Comrie et al. 2015)

## Exercise

- Gloss example (30) with the acceptability judgement.
- Do not forget to label it and refer to it in a sentence afterwards.

(30) # Farblose grüne Ideen schlafen wütend.  
You can find example (30) in Chomsky (1957: 15).
- Reproduce example (31) with glossing and translation. You actually do not need to worry that the example is too long. L<sup>A</sup>T<sub>E</sub>X takes care of it!

(31) Jones buttered the toast slowly, deliberately, in the  
Jones bestrich mit Butter den Toast langsam absichtlich in dem  
bathroom, with a knife, at midnight.  
Bad mit einem Messer um Mitternacht  
'Jones bestrich den Toast mit Butter absichtlich um Mitternacht langsam  
mit einem Messer im Bad.' (Davidson 1967: 82)

## Customizing identifiers

With the command `\exi{ }` instead of `ex`, you can choose own identifiers. The automatic numbering skips the `exi` examples, see (32), and (33).

```
\begin{exe}  
  \ex a noun phrase \label{ex:DetNP}  
  \exi{($\alpha$)} a noun phrase modified with a PP  
  \ex[*]{noun phrase a}\label{ex:NPDet}  
  \exi{($\beta$)}[*]{a with a PP noun phrase modified}  
\end{exe}
```

- (32) a noun phrase
- ( $\alpha$ ) a noun phrase modified with a PP
- (33) \* noun phrase a
- ( $\beta$ ) \* a with a PP noun phrase modified

With the command `\exr{ }` and `\exp{ }` instead of `ex`, you can **repeat the numbering** of earlier examples or repeat it with a **prime**, respectively.

```
\begin{exe}  
  \ex [] {a new noun phrase}  
  \exr{ex:DetNP} [] {a noun phrase}  
  \exp{ex:NPDet} [*] {noun a phrase}  
  \ex [] {another noun phrase}  
\end{exe}
```

- (34) a new noun phrase
- (32) a noun phrase
- (33') \* noun a phrase
- (35) another noun phrase

For further features of `gb4e`, take a look at the package documentation (Kolb et al. 2010).

- 1 Package: gb4e
- 2 Package: langsci-gb4e
- 3 Package: jambox

## Package: langsci-gb4e

There is an **improved version** of `gb4e` made by the *Language Science Press* team.

```
\usepackage{langsci-gb4e}
```

You can use **all gb4e commands**, but there is also a shorter version for the `exe` and `xlist` environments (open and close every level with `\ea` and `\z`, every further item in a level is given by `\ex`), as well as further glossing lines, e.g. `\g111`.

```
\ea This is an example.  
\ea This is an example.  
\ex This is an example.  
\z  
\ex This is an example.  
\z
```

- (36) This is an example.
  - a. This is an example.
  - b. This is an example.
- (37) This is an example.

For further features of `langsci-gb4e`, take a look at the LSP guidelines (Nordhoff & Müller 2018).

- 1 Package: gb4e
- 2 Package: langsci-gb4e
- 3 Package: jambox

## Package: jambox

For adding comments to your examples, you can use the `\hfill` command (alignment on the right side)

```
\ea If no mistake have you made, yet losing you are \dots\ a different game you
should play. \hfill [Yoda-English]
\ex Das ist ein Beispiel. \hfill [German]
\ex Este es un ejemplo. \hfill [Spanish]
\z
```

- (38) If no mistake have you made, yet losing you are ... a different game you  
 should play. [Yoda-English]
- (39) Das ist ein Beispiel. [German]
- (40) Este es un ejemplo. [Spanish]

... or the jambox package.

You will need the `jambox.sty` file in the same folder as your `.tex` file.

```
\usepackage{jambox}
```

(if `lsp-gb4eMyP` is loaded you don't need to load `jambox`)

With `jambox.sty`, you can adjust the **spacing from the right margin to the beginning of the comments** (see: `\settowidth\jamwidth{ }`)

```
\settowidth\jamwidth{[Yoda-English]X}
\ea If no mistake have you made, yet losing you are \dots\ a different game you
should play. \jambox{[Yoda-English]}
\ex Das ist ein Beispiel. \jambox{[German]}
\ex Este es un ejemplo. \jambox{[Spanish]}
\z
```

- (41) If no mistake have you made, yet losing you are ... a different game you  
 should play. [Yoda-English]
- (42) Das ist ein Beispiel. [German]
- (43) Este es un ejemplo. [Spanish]

Complex examples:

```
\settowidth\jamwidth{(Chomsky, 1957: 1)XX}
\ea[?]{Patience you must have, my young padawan. \jambox{(Yoda, 2005)}
}\label{ex:Jam1}

\ex[] {Syntax is the study of the principles and processes by which sentences are constructed
in particular languages. Syntactic investigation of a given language has as its goal
the construction of a grammar that can be viewed as a device of some sort for producing
the sentences of the language under analysis. \jambox{\citep[1]{Chomsky57a}}
}\label{ex:Jam2}

\ex[] {
\gll Jeder Bauer, der einen Esel besitzt, schlägt ihn. \l
every farmer that a.\textsc{m}.\textsc{acc} donkey owns beats it.\textsc{m}.\textsc{acc} \l
\glt 'Every farmer who owns a donkey beats it.'
\jambox{\citep{Geach62}}
}\label{ex:Jam3}

\z
```

- (44) ? Patience you must have, my young padawan. (Yoda, 2005)
- (45) Syntax is the study of the principles and processes by which sentences are constructed in particular languages. Syntactic investigation of a given language has as its goal the construction of a grammar that can be viewed as a device of some sort for producing the sentences of the language under analysis.  
(Chomsky 1957: 1)
- (46) Jeder Bauer, der einen Esel besitzt, schlägt ihn.  
every farmer that a.M.ACC donkey owns beats it.M.ACC  
'Every farmer who owns a donkey beats it.' (Geach 1962)

## Exercise

- Upload the packages `lsp-gb4eMyP`, `lsp-cgloss`, and `jambox` to your project.
  - Comment out the package `gb4e`.
  - Load instead `lsp-gb4eMyP` (`lsp-cgloss`, and `jambox` are loaded in this package, you don't need to load them).
  - Compile.
  - Write examples (11)–(14b) with the new syntax (`\ea`, `\ex`, `\z`).
  - Change your glossed example (30) to the new syntax.
  - Make a copy of your examples (15)–(16) and use the commands `\exr{}` and `\exp{}` (You will need the environment `syntax!`).
  - With the `\exi{}` command, you can build dialogues. Replicate (47).
- (47) A: Who didn't show?  
B: Mary didn't show.

## Exercise

- Copy examples (11) and (31), add the source of the example with `jambox` (compare it with `\hf11`).
- Use `jambox` to give language information:  
(48) a. Ik ga het huis uit (Dutch)  
b. Ich gehe aus dem Haus (German)  
c. I leave the house (English)
- Create the following example with the right glossing:
  - La reina de Inglaterra se llama Isabel  
La regina d'Inghilterra si chiama Elisabetta  
La reine d'Angleterre s'appelle Élisabeth  
The queen of England REFL call Elizabeth 'The queen of England is called Elizabeth'
- Put this definition `\def\exfont{\it}` after the command loading `lsp-gb4eMyP`. See what happens with your examples.
- Make the font of the glosses smaller.
- Remove one `\\` at the end of the `\g11` line and see what happens. Fix it.
- Remove a `\z` at the end of an example and see what happens. Fix it.

## Internet sources I

- Link: Language Science Press  
[www.langsci-press.org](http://www.langsci-press.org) [Access: 02/01/2019]
- Package: `gb4e`  
<https://www.ctan.org/pkg/gb4e> [Zugriff: 06/08/2019]
- Package: `linguex`  
<https://www.ctan.org/pkg/linguex> [Zugriff: 06/08/2019]
- YouTube-Tutorial: L<sup>A</sup>T<sub>E</sub>X Tutorial  
<https://www.youtube.com/channel/UCC-3dzj6dfbWwGzQzhkUS5A> [Access: 23/10/2017]

## Literature I

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<http://www.eva.mpg.de/lingua/resources/glossing-rules.php>.
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[https://www.researchgate.net/publication/295667182\\_LaTeX-Einfuehrung\\_fur\\_Linguisten](https://www.researchgate.net/publication/295667182_LaTeX-Einfuehrung_fur_Linguisten).
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<http://langsci.github.io/guidelines/latexguidelines/LangSci-guidelines.pdf>.