Sign Language Glossing:
Using the *sgloss* package in LaTeX

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online: **www.fabianbross.de/sign_language_glossing.pdf**

This is a very brief tutorial on how to gloss sign language data. The tutorial mainly focuses on how to do this using the LaTeX package *sgloss*. The package can be found here: **https://github.com/itamarkast/slgloss**. To load the package, put the following into the preamble of your LaTeX file:

```
\usepackage{slgloss}
```

A simple example would look like the following:

```
\documentclass{article}
\usepackage{slgloss}
\usepackage{gb4e}
\usepackage{tipa}
\begin{document}

\slg[non-manuals]{manual signs are here\textsubscript{\textup{subscript}}}

\end{document}
```

Additionally, I will make use of the *gb4e* package for general linguistic glossing which can be loaded by putting `\usepackage{gb4e}` into the preamble. As you can see from the simple example above, there is yet another package called *tipa*. This is used for symbols from the International Phonetic Alphabet (which play a role in mouthings).

1   Manual signs

Individual manual signs are glossed using small caps. The name chosen for the gloss is simply the best translation into the metalanguage (in this case English). Thus, SIGN denotes a manual sign translating to 'sign'. In LaTeX you either write `\textsc{sign}` or, using the *slgloss* package, `\slg{sign}` to achieve this result. Often there is one individual sign which translates into several English words. In German Sign Language, for example, there is one single sign which would translate into 'at home'. Thus, in English, several words are required where there is only one sign in German Sign Language. In this case we simply write the words connected by a hyphen: AT-HOME.

Individual signs

One sign, several words

There are other cases in which this notation is useful. For example, many sign languages exhibit signs which have negative counterparts. In German Sign Language, for example, there is the manual modal verb MUST which is negated by a head-shake plus a change in the movement path of the verb sign (called 'alpha negation' because the movement path of the verb changes in that it looks like drawing an alpha). This negation strategy is applied to many other verbs. We would gloss this MUST-NEG indicating that we can segment the sign into two meanings that are brought about by the manual sign MUST and the negation which is expressed in a change of the movement path of the sign (ignoring the head-shake for now). We use the hyphen because we are dealing with one single sign. Note that this may be a little strange from the perspective of linguists used to gloss spoken languages since in the Leipzig Glossing Rules one would use a dot in this case and not a hyphen.

Word formation

There are, of course, also situations where there are several manual signs that form one sign. This is, for example, the case with compounds (which are generally rare in sign languages compared to many spoken languages). This is glossed using hash marks. An example of a compound from German Sign Language would be NATURE#DISASTER 'natural disaster'. In LaTeX you would write this as \textsc{nature\#disaster}. Using *slgloss* this is produced in pretty much the same way: \slg{nature\#disaster}.

The hash mark strategy is also used with other types of word formation. In German Sign Language, for example, the sign PERSON can be used in a way that is similar to an agentive suffix. Thus, LINGUISTICS#PERSON can be translated to 'linguist' or POLICE#PERSON to 'police officer'.

Finger-spelling

Some sign languages make use of fingerspelling. Fingerspelling is glossed with dashs. If I would like to fingerspell my first name I would write F-A-B-I-A-N. In simple text mode you would write this as \textsc{f-a-b-i-a-n}. In the slgloss package you can simply write \fs{fabian} (with 'fs' of course being the abbreviation for fingerspelling).

Subscripts

Subscripts are used for several purposes. Numeric indices are used to refer to locations in space. The number one refers to the location of the signer, the number two to the location of the addressee, and the number three to the location of some other referent—whether present in the context or not. Pointings (with the index finger) are glossed INDEX (or sometimes IDX). Pointings are used for personal pronouns. Thus, INDEX$_1$ is to be interpreted as the signer pointing to herself (i.e., the first person personal pronoun), INDEX$_2$ as the signer pointing to an addressee (i.e., second person personal pronoun, and INDEX$_3$ as the signer pointing to some other point in space (i.e., third person personal pronoun). When several points in space need to be distinguished, letters are used. Thus, INDEX$_{3a}$ and INDEX$_{3b}$ are two different locations in signing space.

The same indices are used for other purposes. Examples include personal pronouns (e.g., POSS$_1$ for the first person possessive pronoun) and agreement verbs. Thus, $_1$GIVE$_2$ is to be interpreted as 'I give you'. Other uses of subscripts include classifier handshapes or aspectual changes of the movement of the manual sign. Examples include $_1$GIVE$_{2\text{-cl:long-thin-object}}$ or INSULT$_{\text{asp:frequentative-I}}$. The first gloss is to be interpreted as the sign GIVE starting at the signer's location and ending at the addressee's location. At the same time, the classifier handshape for long and thin objects is used. The second example is to be interpreted as the sign for insult which is manipulated for the frequentative aspect I.

There are several ways to achieve subscripts. I suggest to use the command \textsubscript{}. Some examples (the double slash is used to introduce a new line):

```
\textsc{index}\textsubscript{3a}\\
\textsubscript{3a}\textsc{give}\textsubscript{3b}\\
\textsc{give}\textsubscript{cl:long-thin-object}
```

This produces:

INDEX$_{3a}$
$_{3a}$GIVE$_{3b}$
GIVE$_{cl:long-thin-object}$

When using the *slgloss* package, the `\textup{}` command helps you to write text which is not presented in small caps. Either the `\textsubscript{}` command can be used or an underscore:

```
\slg{index\textsubscript{\textup{3a}}} vs. \slg{index\textsubscript{3a}} \\
\slg{index_{\textup{3a}}} vs. \slg{index_{3a}}
```

This produces:

INDEX$_{3a}$ vs. INDEX$_{3A}$
INDEX$_{3a}$ vs. INDEX$_{3a}$

As you see, there is a small difference in the size of the indices. I like the first version more, but this may be a matter of style. Additionally, you see that without the `\textup{}` command, letters are presented in small caps with `\textsubscript{}` or in italics when using the underscore.

   As you may have guessed, you can also use the `\textup{}` command without a subscript:

```
\slg{small caps and \textup{not small caps} again small caps}
```

This produces:

SMALL CAPS AND not small caps AGAIN SMALL CAPS

Some manipulations of the movement path of manual signs are traditionally not glossed using subscripts. Reduplications are often glossed using plus signs. I suggest to gloss an execution of a sign with one plus sign. Thus INSULT++ means that the sign INSULT is executed twice and INSULT+++ means that the sign is executed three times in a row. **Reduplication**

2   Non-manuals

Non-manual markers are glossed by using overlines. The lines start where the non-manuals start and the line ends where the non-manuals end. In many sign languages, polar interrogatives are accompanied by raised eye-brows, for example. We could gloss this as: **Line notation**

(1) $\overline{\text{PAUL PARTY COME}}^{\text{br}}$

This example was produced, using the *slgloss* package and the *gb4e* package for linguistic examples:

```
\begin{exe}
\ex \slg[br]{paul party come} \label{imalabel}
\end{exe}
```

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We simply abbreviated the brow raise by 'br'. We could also choose a more interpretative label:

(2) $\overline{\text{polar}}$
      $\overline{\text{PAUL PARTY COME}}$

This makes sense especially when there is a bundle of non-manuals that is used for one function (and additionally helps to avoid confusion since you will arrive at many abbreviations quickly). In German Sign Language, polar interrogatives are, for example, accompanied by raised eyebrows, putting the head forward and tilting it towards the end of the clause. If these individual non-manuals play a role in your discussion, I would recommend glossing them all, maybe even individually (and otherwise just use a more telling gloss). This can also be achieved by stacking non-manuals when they have different on- and offsets. To do this, we need the `\textup{}` command again. Remember that the code produces small caps for manual signs automatically. We can prevent this by using the command `\textup{}`. If we now want to stack non-manuals, we need to nest several commands:

Preventing small caps

```
\begin{exe}
\ex \slg[br]{paul party \slg[\textup{hf, ht}]{come}} \label{imanotherlabel}
\end{exe}
```

This code produces the following output (with 'hf' meaning head forward and 'ht' meaning head tilt):

Stacking non-manuals

(3) $\overline{\phantom{\text{hf, ht}}\ \text{br}}$
      $\overline{\text{hf, ht}}$
      PAUL PARTY $\overline{\text{COME}}$

Now, the non-manual glosses are right-aligned. In some cases one might want to indicate that the intensity peak of the non-manuals is at the beginning of a clause (or at an other segment). This can be indicated by left-alignment. In this case, the `\slgl{}` command is used:

Left-alignment

```
\begin{exe}
\ex \slgl[mirative]{paul new computer buy} \label{yetanotherlabel}
\end{exe}
```

This produces:

(4) $\overline{\text{mirative}}$
      $\overline{\text{PAUL NEW COMPUTER BUY}}$

By the way, if you want to add a translation into your metalanguage to the example, you could write:

```
\begin{exe}
\ex \slgl[mirative]{paul new computer buy}\\
'Surprisingly, Paul bought a new computer.'\label{labelnew}
\end{exe}
```

This produces:

(5) $\overline{\text{mirative}}$
      $\overline{\text{PAUL NEW COMPUTER BUY}}$
      'Surprisingly, Paul bought a new computer.'

For the optional spreading of non-manuals, dashed lines can be used. To do this, the `\slgdash{}` **Dashed lines** can be used:

```
\begin{exe}
\ex \slg[]{poss\textsubscript{1} dream }\slgdash[epistemic frame]{frame\textsubscript{\textup{3}}
person+++ peacefully together live}
\glt 'In my dream, people lived peacefully together.'\label{dashedexample}
\end{exe}
```

This produces:

(6) $\overline{\phantom{\text{POSS}_1 \text{ DREAM}}}\overline{\phantom{\text{FRAME}_3 \text{ PERSON}+++ \text{ PEACEFULLY TOGETHER LIVE}}}^{\text{epistemic frame}}$
$\overline{\text{POSS}_1 \text{ DREAM}}\ \text{FRAME}_3 \text{ PERSON}{+}{+}{+} \text{ PEACEFULLY TOGETHER LIVE}$
   'In my dream, people lived peacefully together.'

The example in (6) is to be interpreted in the following way: The non-manuals glossed 'epistemic frame' obligatorily accompany POSS₁ DREAM but can optionally spread over the rest of the clause.

3 Mouthings

Mouthings, i.e., the production of visible syllables borrowed from the surrounding spoken language, are glossed in a way similar to how other non-manuals are glossed. As mouthings are borrowed from a spoken language, an IPA notation can be used. In German Sign Language, for example, there is a construction expressing that the signer is insecure about the proposition expressed in another clause. In this construction the signer first signs the proposition and then the manual sign WHETHER is produced three times. The sign is accompanied by mouthing the German word *ob* 'whether' three times. The phonological transcription of *ob* is /ɔp/. We would write, for example:

(7) PAUL LOTTERY WIN $\overline{\text{WHETHER}+++}^{/ɔpɔpɔp/}$
   'Maybe Paul has won the lottery.'

This requires an IPA package (e.g., `\usepackage{tipa}` is an useful package) and was produced in the following way:

```
\begin{exe}
\ex \slg{paul lottery win} \slg[/\textopeno p\textopeno p\textopeno p/]{whether+++}\\
'Maybe Paul has won the lottery.'\label{obobobo}
\end{exe}
```