American Sign Language
Linguistic Research Project

Documentation for Download of ASLLRP Signs Segmented from Continuous Signing Corpora

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http://www.bu.edu/asllrp/

1. Introduction

The American Sign Language Linguistic Research Project (ASLLRP) makes available a variety of resources for computational and linguistic research and education related to American Sign Language (ASL); see the References. In particular, the ASLLRP Sign Bank, available online from **https://dai.cs.rutgers.edu/dai/s/signbank,** enables searching and viewing ASL signs, as produced in a variety of ways by multiple ASL signers, both in citation form and in sentential context. The isolated sign datasets can currently be downloaded from that website; the ASLLRP Sign Bank examples segmented from our continuous signing corpora have also now been made available for download. These signs have been linguistically annotated in a consistent way across the ASLLRP datasets, and the annotations are also available for download.

The purpose of this document is to provide information about the csv files that that accompany the downloadable **signs segmented from the ASLLRP continuous signing corpora**.

1.1. Explanation of the spreadsheets

Below is an explanation of what is contained in each of the columns of the spreadsheets associated with the signs segmented from the ASLLRP continuous signing corpora.

Column A : Video ID number
Column B : Main entry gloss label
Column C : Entry / variant gloss label
Column D : Occurrence label
Column E : Start frame of the sign video
Column F : End frame of the sign video
Column G : Start frame of the containing utterance
Column H : End frame of the containing utterance
Column I : Dominant start handshape
Column J : Non-dominant start handshape
Column K : Dominant end handshape
Column L : Non-dominant end handshape
Column M : Sign video filename
Column N : Utterance video filename
Column O: Source collection
Column P: Utterance number
Column Q: Master video filename
Column R: Sign type

[see §3 below for explanation]

[See Appendix for interpretation of handshape labels]

1.2. Format of the video files

For each sign, video files are listed in different columns of the spreadsheets and provided separately for download of (1) the sign itself; (2) the containing utterance, and (3) the master video containing that utterance among others. Depending on your research interests, you may wish to download only (1), or only (1) and (2). The video files provided in (3) are extremely large and may not be needed, depending on your research focus.

The videos are provided either as .mov or .mp4 files—in h264 (Constrained Baseline) or mpeg4 (Simple Profile) formats, respectively. The files are formatted with 29.97002997002997 frames per second.

The rest of this report replicates explanations also provided in [7].

2. Special characters as they appear in the spreadsheet

For technical reasons related to processing of special characters, you will find, in the Excel file, the representation of a text string in between quotation marks represented with backward slashes around the relevant string followed by the quotation marks. So, for example, the gloss **"WHAT"** (in quotation marks) is displayed in the *Excel* spreadsheet as **\WHAT\""**. Similarly, the gloss for the classifier **LCL"path-turn-around"** is included in the *Excel* spreadsheet as **LCL\path-turn-around\""**. The CSV file may actually look a little bit different, with, for example, the following appearing for **"WHAT"**: **"\"WHAT\""**.

Note that for the handshape labels in the provided spreadsheets, those containing the symbol "/' in the Appendix have that symbol replaced by '_'.

3. Explanation of glossing conventions and glosses in the 3 columns

3.1. English-based text used for gloss labels

The text used for gloss labels, although based on English words (to assist mnemonically), should not be interpreted to have any inherent significance. In some cases, when there is more than one common usage, the label may consist of two English words separated by a slash, as in **BETWEEN/SHARE** or **BOX/ROOM** or **AVOID/FALL-BEHIND**.

Note that spaces are not allowed in gloss text. When two English words are used for a gloss, they are connected by a hyphen, as in **GIVE-UP.**

3.2. Phonological Variation vs. Lexical Variation

When there are differences in sign production that are purely phonological, i.e., that can occur generally in the language and that are not specific to the specific lexical item, the same gloss label is used, although we annotate the handshapes as they occur. For example, there are signs that normally begin or end with a '1' handshape that sometimes occur with a 'D' handshape instead. To reiterate: where this is purely a phonological variation, we do not gloss the signs differently on this basis. Examples include **ALARM** and **DRY**, as shown in Figure 1, among others. Note that all of the example signs included here can be viewed from the online ASLLRP Sign Bank: **https://dai.cs.rutgers.edu/dai/s/signbank.**

There are other cases where the allowed variability in handshape is specific to a particular sign. Such cases are considered to involve lexical variants, and these productions **do** have distinct text-based glosses, although they are grouped under a single "main entry". For example, the sign for **COP** can use one of two handshapes, and this variation is specific to this sign, so these are considered two lexical variants—each involving a different handshape—of the main entry "**COP**". Thus, they have different text labels (see § 3.3) but are classified as variants of the same sign, i.e., the same "main entry"), as shown in Figure 2.

Figure 1. Illustration of phonological handshape variation

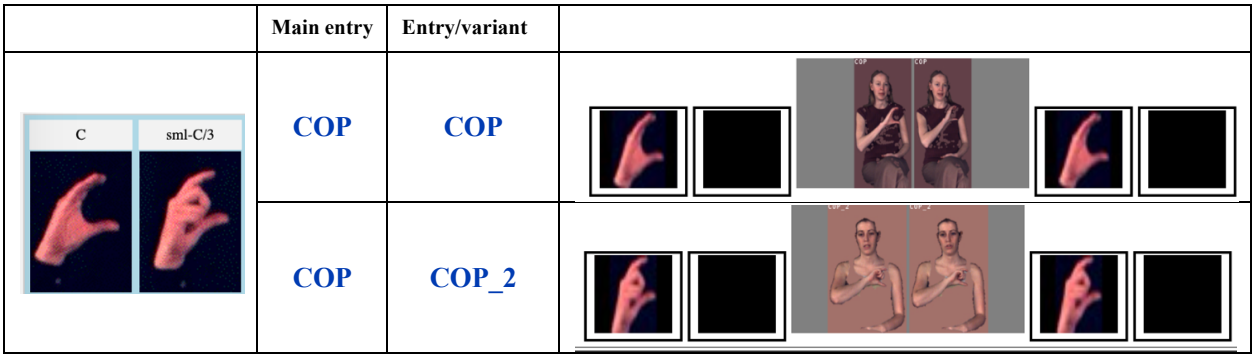


Figure 2. Illustration of lexical variations distinguished by handshape

3.3. Conventions for distinguishing gloss labels

There are various strategies for providing distinct text-based gloss labels, whether for different lexical variants or for distinct signs that can have similar English translation; and there is no significance to which option is chosen:

- It could be a distinct English-based label (e.g., **CABINET** *vs.* **CUPBOARD**).
- There could be a numerical suffix, such as above, with **COP** *vs*. **COP_2**.
- Sometimes there is a prefix marking the difference in handshape (e.g., **CORNER** *vs.* **(1)CORNER**, as in Figure 3).

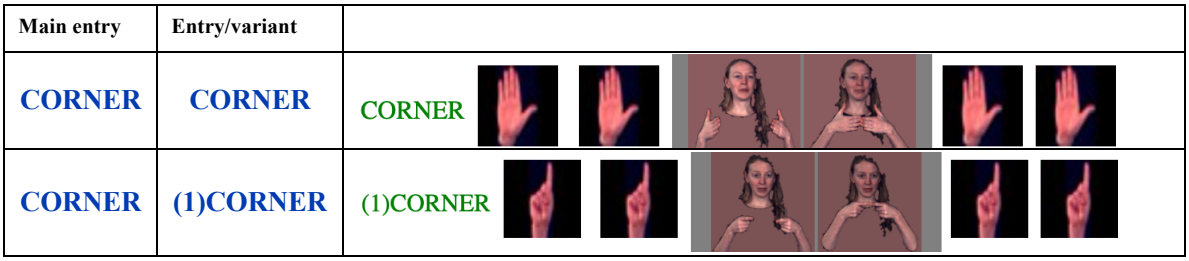


Figure 3. Example of lexical variants of main entry CORNER

There is no significance to any of these choices; the only essential consideration is that there needs to be a 1-1 correspondence between a given text label and a distinctive sign production, whether the different productions correspond to lexical variants or distinct signs (main entries). The latter case is illustrated by **LATER** vs. **LATER_2,** shown in Figure 4, which are different enough in production to be classified as distinct signs rather than variants of a singles sign. It should be noted, however, that there are cases where it is a close call whether to classify two variants as a distinct entry variants or lexical variants of a single sign. So there is some degree of arbitrariness in these decisions, which nonetheless need to be made. In any case, we have kept our annotations in this respect consistent across the data set.

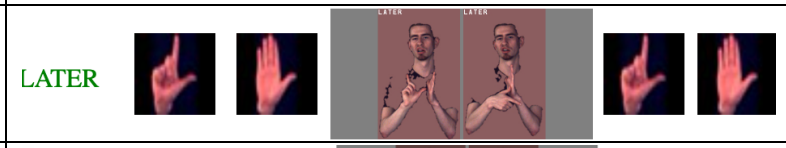
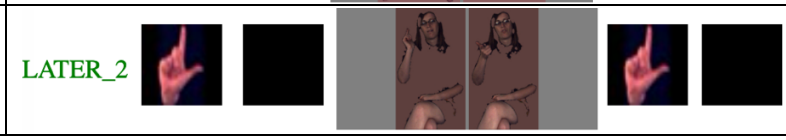
Main entry	Entry/ variant	
LATER	**LATER**	
LATER_2	**LATER_2**	

Figure 4. Example of distinct signs (entry variants) with the meaning of 'later'

3.4. Marked number of hands

Sometimes a sign that is normally 1-handed is produced with 2 hands. In that case, the prefix '(2h)' is added to the gloss, and vice versa for signs produced with 1 hand that are normally 2-handed: they are marked with the prefix '(1h)'. Example: **GIVE** (1-handed) vs. **(2h)GIVE** (2-handed). Occasionally it can require a relatively arbitrary decision as to which of the two variants should be considered to be the unmarked form. But again, we are careful to be consistent across the dataset in how a given sign production is annotated.

3.5. Inflection

There are other cases where inflected forms have annotations reflecting those inflections, but are considered to be lexical variants of the corresponding uninflected forms. Subject and object agreement, for example, is marked on signs in various ways; see ([3-6, 8]) for details. For example, pronoun forms and agreeing verbs, can be marked for 1st, 2nd, or 3rd person subject and/or object agreement by a prefix and/or suffix (e.g., **1p-GIVE-2p,** which is classified as a variant under main entry **GIVE**). Third-person singular and plural object agreement also includes spatial information about reference, e.g. **1p-GIVE:i,** where 'i' is an index representing the spatial location associated with the referent, or **IX-3p:i**, where **IX** represents the use of the index finger as a 3rd-person pronoun accessing the referential location designated by the index 'i'.

Our annotation conventions were originally developed for continuous signing. Certain distinctions are not discernible in citation-form signs. For example, the sign produced with the index finger and pointing at a specific location can function as a pronoun, a determiner, or an adverbial of location (e.g., **IX-loc:i.)** These can be differentiated in continuous signing, but in citation form, the notation is simplified to **IX:i.**

3.6. Sign Types

Prefixes identify several specific sign types, as illustrated below:

Example sign	*Prefix*	*Marks…*
fs-UP	**fs-**	Fingerspelled signs
5"forget it"	**#**	Loan signs
BCL"put arms around friend" **PCL:4 "long line of people"**	**BBCL, BPCL, DCL, ICL, LCL, PCL, SCL** optionally followed by a colon and a handshape label	different types of classifiers: ***Body, Body Part, Descriptive, Instrument, Locative, Plural, Semantic***, respectively
ns-AUSTRALIA	**ns-**	name signs (can be of any sign type)
ns-nat-AUSTRALIA	**ns-nat-**	name signs taken from the sign language of the relevant part of the world

Table 1. Prefixes that mark sign type

Compounds are represented by the Variant Labels of their parts, connected by a '+' sign, as in: **TEACH+AGENT** (meaning 'teacher). The '+' sign also has another use, as described below.

3.7. Occurrence Labels and Reduplication

Many signs can be produced with the end portion of the sign repeated one or more times. Sometimes this is associated with a meaning change; it can convey aspectual marking [2] or nominalization [1, 9], e.g.. Often, however, there is no discernible difference in meaning. We consider cases differentiated solely by such reduplication to be instances of the same sign production, i.e., the same sign variant, without regard for meaning differences associated with reduplication. (Therefore, these are also considered to be instantiations of the same main entry.)

We have attempted to represent cases where the sign is produced with more repetitions than are required for the base form of the sign by adding one plus for each such repetition. For example, the sign for 'father' can be produced with a single touch of the forehead, or with 2 touches (**FATHER+**). If there were 3 touches, that would be **FATHER++.**[1] This extra duration can alternatively be accomplished by a single touch with finger wiggling (**FATHERwg)**. This is shown in Figure 5.

[1] The number of plusses in the annotations may not be totally consistent. Annotators may not have agreed on what the default production is after which repetitions merited a '+'. We include these occurrence labels because they may be of use, but if these repetitions are to be the basis for research, the annotations should be carefully verified. In any case, any inconsistencies in the number of plusses included in the occurrence labels does not affect the variant and main entry labels.

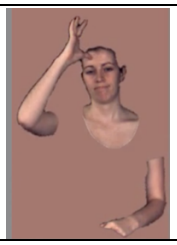
Main entry	Entry/ variant	Occurrence	
FATHER	FATHER	FATHER	FATHER – produced with 1 touch
FATHER	FATHER	FATHER+	FATHER – produced with 2 touches
FATHER	FATHERwg	FATHERwg	FATHER – produced with finger wiggling

Figure 5. Occurrence Label includes marking of Reduplication (+) in row 2

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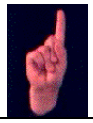
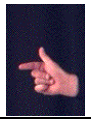
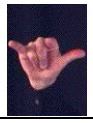
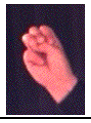
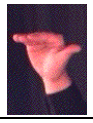
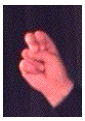
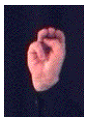
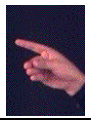
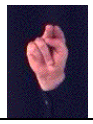
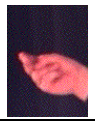
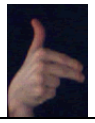
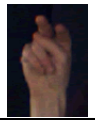
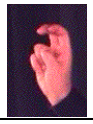
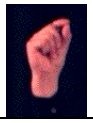
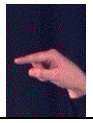
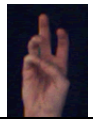
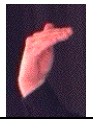
Any opinions, findings, or conclusions expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation

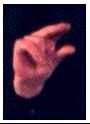
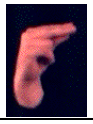
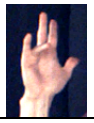
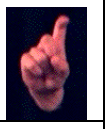
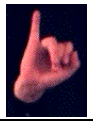
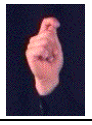
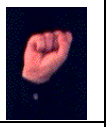
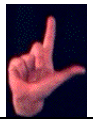
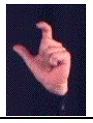
Appendix: Handshape Labels

see also http://www.bu.edu/asllrp/cslgr/pages/ncslgr-handshapes.html

1		alt-G_ bent-L		bent- I-L-Y		crvd-3	
3		alt-M		bent-L		crvd-5	
4		alt-N		bent-M		crvd-B	
5		alt-P		bent-N		crvd-flat-B	
6		B		bent-U		crvd-L	
7		B-L		bent- U-L		crvd-sprd-B	
8		B-xd		bent-v		crvd-U	
10		baby-O		C		crvd-V	
25		bent-1		cocked-7		crvd-W	
5-C		bent-B		cocked-8		D	
5-C-L		bent-B-L		cocked-F		E	
5-C-tt		bent-B-xd		cocked-S		F	
A		bent-horns		cocked-U		fanned- flat-O	

Appendix: Handshape Labels

see also http://www.bu.edu/asllrp/cslgr/pages/ncslgr-handshapes.html

flat-B		M		tight-C-2	
xsflat-G		N		U	
flat-O		O		U-L	
flat-O_2		O-2-horns		V	
full-M		open-7		Vulcan	
G		open-8		W	
horns		open-F		X	
I		R		X-over-thumb	
I-L-Y		R-L		Y	
K		S			
L		sml-C-3			
L-X		T			
loose-E		tight-C			

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