Auslan Corpus Annotation Guidelines

Trevor Johnston*, PhD, DLitt, FAHA

Monash University & Macquarie University

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(with minor corrections and updated screen grabs from the corpus)

*** Authorship and acknowledgements** Trevor Johnston is the initial and primary author of these guidelines which were first written up in 2005. However, the document has evolved since then benefitting from input and feedback from several sources as the annotation files in this Auslan Corpus have been expanded so it usually seems more natural to use the plural first person pronoun *we* when referring our annotation practices in general. Nonetheless, I revert to the singular first person pronoun when referring to my practice and theoretical stance, especially when initiated by me or supported with references to single author publications of mine.

ELAN annotation guidelines and model templates for the Auslan Corpus, for which Adam Schembri and Dafydd Waters provided valuable input, began in 2004. Between 2006-2008 guidelines were further expanded by Trevor Johnston and Louise de Beuzeville during a research project on the linguistic use of space in Auslan.[1]

The annotation conventions used in this ARC project were superseded at the beginning of 2010, and the annotation files of the Auslan Corpus held by Johnston, were amended to conform to these new guidelines. The 2010 version of the guidelines also drew on the work of Crasborn, van der Kooij, Waters, Woll, and Mesch (2008), Crasborn et al. (2007), and Crasborn and Zwitserlood (2008).

The guidelines have continued to be updated as a result of the many useful suggestions and feedback from a number of colleagues, research assistants, doctoral research students and annotators who contributed to the corpus. They include (most recent first): Jane van Roekel, Lori Whynot, Christopher Hansford, Ben Hatchard, Michael Gray, Gabrielle Hodge, Lindsay Ferrara, Julia Allen, Gerry Shearim, Karin Banna, Dani Fried, Louise de Beuzeville, Della Goswell, and Adam Schembri. The conventions developed during the doctoral research of Gabrielle Hodge and Lindsay Ferrara have been incorporated and adapted into the Corpus and the Annotation Guidelines. In this process some annotations were modified to conform to the updated guidelines. (Therefore, researchers who wish to view the annotations exactly as used in those dissertations should contact Hodge or Ferrara directly for access.) Other changes and additions have arisen out of my involvement with two other projects creating signed language corpora—one for BSL (British Sign Language) led by Adam Schembri, and one for PJM (Polish Sign Language) lead by Paweł Rutkowski (and including Johana Filipczak, Anna Kuder, and Piotr Mostowski among others); and a corpus-based project on the syntax of BSL lead by Kearsy Cormier (and including Gabrielle Hodge, Adam Schembri and Jordan Fenlon, among others).

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[1] ARC Discovery Project (#DP0665254) The linguistic use of space in Auslan: semantic roles and grammatical relations in three dimensions awarded to de Beuzeville and Johnston.

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Note: Interlinear written examples (based on observation, elicitation and memory) used in earlier versions of these guidelines are being replaced with example screen grabs of ELAN windows from the corpus. In order to save space, these grabs are relatively small. You will need to enlarge this pdf by up to 200% in order to read the annotations.

Auslan Corpus Annotation Guidelines

1 Introduction

The creation of signed language (henceforth SL) corpora—as modern linguistic corpora—presents special challenges to linguists. SLs are face-to-face visual-gestural languages that have no widely accepted written forms or standardized specialist notation system that can be used to represent what is being uttered. Until recently, transcription and glossing practices have created datasets that have been small, non-representative or not machine-readable in any meaningful sense. This naturally raises questions about grammatical descriptions or theoretical claims based on these data.

Detailed phonetic or phonological transcription has consumed the efforts of many research teams over a considerable period of time yet have resulted in relatively modest texts that still lack the identification of type-like units at any other level of linguistic organisation beyond the individual sign. Similarly, SL texts that are represented by contextually sensitive glosses, rather than phonetic or phonemic notation and transcription, have also proved problematic due to idiosyncratic practice (e.g., the same sign form actually being glossed in different aways in different usage contexts) and the fact that glossing itself usually gives little or no indication of sign form.

In these guidelines, I describe the way in which multimedia annotation software is being used to transform an archive of Auslan recordings into a true machine-readable linguistic corpus. I describe the structure of the annotation files in the Auslan Corpus and the glossing and annotation conventions used to create them. Details of the methodology used in the collection of the Auslan Corpus can be found elsewhere (Johnston & Schembri, 2006, 2007b; Johnston, 2008a, 2008c, 2008b). Detailed argumentation for prioritizing annotation over transcription in the creation of the Auslan Corpus can also be found elsewhere (Johnston, 2010b, 2010a).

1.1 Corpus-based SL research

The need for a corpus-based SL linguistics arises from two major sets of concerns. The first applies equally to spoken language (henceforth SpL) and relates to long canvassed questions about the nature of evidence in linguistics and the limits to and reliability of intuition, introspection, and the elicitation of grammaticality judgements. I will not repeat them here (see, e.g., Penke & Rosenbach, 2004; McEnery, Xiao, & Tono, 2006). The second set concern the nature and the impact of the acquisition and usage environments typical of SL users brought about by the shallow historical depth of signing communities, the absence of written forms, few institutional or 'schooled' language norms, interrupted intergenerational transmission, few native signers, language contact, and limited access to primary data for peer review. For detailed discussion of these factors in relation to SL transcription, annotation and corpora, see Johnston (1991, 2010a, 2012). Some of these are typical, if not unique, to SL-

using communities (e.g. intergenerational transmission, access to primary data) but the others may also characterise other language communities. Trudgill (2011), for example, has raised the issue of the impact of the social characteristics of speech communities on language structure in terms of the social determinants of linguistic complexity, variation and rates of language change (Schembri, Cormier, Fenlon, & Johnston, 2013).

The abovementioned factors undoubtedly contribute to the fact that SL use is commonly reported to be highly variable (Schembri & Johnston, 2013) and, apart from items of core basic vocabulary and cases of clear violations of logical or spatio-temporal coherence, it is often difficult to get consensus even from native signers with respect to what is phonologically, lexically or grammatically acceptable, typical or marked. The previous reliance on the intuitions of small numbers of informants in SL research is thus problematic. Together, these concerns make testing generalizations against attested usage particularly relevant in the field of SL linguistics.

A final consideration is theoretical. I am sympathetic to a broadly construction-based cognitive-functional approach to language structure, i.e., a framework that characterises language as a system of form-meaning symbolic units (constructions) of various sizes across the lexicon and grammar seen as a continuum (a lexico-grammar). Furthermore, I am sympathetic to usage-based theory and the notion that these constructions are an emergent property of language that are created and fed by repeated usage events. Usage-based theory demands that researchers attend to language-in-use (Bybee & Hopper, 2001; Bybee, 2010) hence the need for naturalistic data-sets.

It is relevant in this context to note that it has been taken as axiomatic by many SL researchers that almost all of the symbolic communicative behaviour of signing deaf people is language-dedicated. However, this is actually a working assumption, not an established fact. If gesture plays a significant role in face-to-face communication (spoken or signed) then some symbolic behaviour may not be linguistic in the sense of being part of a highly conventional, systematic, ordered, rule-governed system in which most of the forms—in either primary modality—are actually language-specific. Possibilities in wording and morpho-syntactic coding are often highly constrained by the very nature of linguistic systems, i.e., some constructional schemas are obligatory in certain contexts and thus many aspects of linguistic symbolic behaviour can be sampled from relatively small numbers of users precisely because of this. However, if the substantive symbols are not actually linguistic in the sense we have described then it is unlikely that any single individual, or small sample of individuals, will provide data upon which can be generalized core constructional schemas of the language. There is reason to believe that some aspects of signing behaviour (like mouth actions) fall into this category. Thus it is incumbent on researchers to accommodate this possibility, rather than generalize in an a priori fashion.

A central aim of SL corpus linguistics, therefore, is to empirically ground SL description in usage in order to validate previous research and generate new observations. Other aims are to document the linguistic community to aid in language maintenance in situations

of endangerment and for the preservation of a cultural artefact for its own sake; and, much more immediately, to create teaching and learning materials for SL-using communities because it is often difficult for learners to get adequate exposure to the language.

What does doing SL corpus linguistics entail? In the first instance, it entails creating documentary language recordings of well-described (i.e., with comprehensive and accurate metadata) naturalistic and representative texts produced by signers. Secondly, it involves transforming and adding value to these recordings by making them machine-readable and by ensuring the resulting corpora are accessible for meaningful peer review.

Value-adding is achieved thorough notation, transcription, annotation and tagging. The distinction between each of these has been explained in depth elsewhere (Johnston 1991, 2010), but can be summarized as follows:

Note 1: Annotation and tagging

As the title of this monograph states: these guidelines are about annotating a SL corpus. Briefly, we use *annotation* to mean the identification within a stream of language text (be it signed or spoken) segments of gestural or vocal behavior that appear to be discrete units of meaning. We use *tagging* to mean appending to these annotations various short labels that identify the type of unit, its role in the linguistic unit at the word, phrase, or clause level, and sometimes it's semiotic type (describing, depicting, indexing). It should be remembered, though, that a tag is really just a type of annotation. Modern large scale corpus linguistics deals primarily with written texts or transcribed spoken texts in which most conventional units have already been identified in the very act of writing or transcribing. These linguists are primarily tagging their datasets, often semi-automatically, rather than creating a taggable representation of the text (written or transcribed) as the first step. SL linguists do not have this luxury.

Multi-media annotation software makes it is possible to gain instant and unambiguous access to the actual form of the signs being annotated—the raw data of the video recording—because annotations and media are time aligned. Given there is no standard written form of any SL, this technique eliminates the necessity for SL linguists to transcribe their language data *first* before they are able to share data or commence a range of investigations into the lexicon and grammar of SLs based on corpora. However, this does not mean that transcription is not necessary for various types of phonetic and phonological work on SLs, so provision is made in the template for form tagging and transcription (see §4.1.1).

Note 2: Searching and filtering annotations

A key consideration in the design of the annotation schema is to support complex searching of the corpus annotations in ELAN or filtering exported annotations into spreadsheets, such as Excel. At various points in these guidelines there are boxes, like the one you are now reading, that explain how aligned annotations involving the one discussed at that point in the text can uniquely capture constructions of various types at the sign, phrase, or clause level.

1.2 Creating a SL corpus from a digital documentary archive

Best practice demands that native or native-like signers should be involved in all stages of corpus annotation and, ideally, annotations should be reviewed by a second annotator so that translations can be corroborated or obvious initial glossing !
s can be corrected. Nonetheless, existing annotations eventually become enriched by other researchers in subsequent passes of the video. These researchers can identify omitted or misidentified signs or prosodic elements that have been overlooked. They can also attach

new linguistic annotations that tag for phenomena not were not in focus during previous annotation passes.

In this way the Auslan Corpus annotations are revised and augmented over time. Experience tells us that the annotations files tend to stabilize over time and fewer and fewer corrections are proffered because the annotations eventually reflect a broad consensus. Thus, one way or another, repeated annotation passes make each annotation file—and the whole corpus—a rich source of data for research.

The annotation process should thus be seen as open-ended in two senses First, it can be corrected. Second, differing theoretical or methodological perspectives can always be taken on the same piece of text, allowing for it to be annotated in different ways.

Finally, though the annotation conventions describe here are not meant to be treated as proposals for standards that should be adopted in all SL corpora, there is one convention that I believe *is essential for* SL corpora to be are properly constituted and machine-readable, namely conventional lexical signs should be consistently, invariantly and uniquely identified using gloss-like annotations which I call ID-*glosses* (see §3.2.2 for more details).

2 The Auslan Corpus and the Auslan Archive

The Auslan Corpus is based on a digital video archive of a sample of the SL of the Australian deaf community collected from 256 participants across two distinct datasets created for two separate projects.

The first archive was collected in a project investigating sociolinguistic variation in Auslan conducted by Trevor Johnston and Adam Schembri (2003-2005).[2] It is an archive, rather than a corpus, because it has yet to be annotated. The second archive set of recordings is the basis of the Auslan Corpus and was collected during a language documentation project conducted by Trevor Johnston (2005-2007)[3]. The recordings and an initial small set of annotation files, was deposited in the Endangered Languages Archive (ELAR) in 2008. Both archives have now been acquired by Monash University as part of the Language Data Commons of Australia (LDaCA), funded by the Australian Research Data Commons.

Since 2008 Johnston, colleagues, and research students have expanded the annotation files of the second archive by adding new annotations and by expanding the number of task videos that have received some level of annotation. This new corpus is not part of the original ELAR deposit but are part of the expanded Auslan Corpus now deposited at Monash University. These Annotation Guidelines are updated for this new Auslan Corpus.[4]

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[2] Australian Research Council (ARC) research grant #LP0346973 Sociolinguistic Variation in Auslan: Theoretical and applied dimensions, awarded to Trevor Johnston and Adam Schembri.

[3] An Endangered Language Documentation Project funded by the Hans Rausing Endangered Languages Documentation Program (ELDP) at the School of Oriental and African Studies (SOAS), University of London (Grant #MDP0088) awarded to Trevor Johnston.

[4] Only the information on basic annotation in these guidelines applies to the materials in the ELAR Auslan deposit.

Both datasets together represent about 200 hours of sign language production by deaf native or near-native users of Auslan. To date (March, 2024), 660 of the approximately 1,100 video clips in the Auslan Archive had received primary processing, i.e., basic annotation using glosses and free translations. This represent about 14 hours of the 200 available hours and approximately 100,000 glossed sign tokens.

A subset of the corpus files have received some degree of secondary and tertiary processing (see §2.1.4 below).[5] Of these, 50 clips as part of a research project investigating the grammatical use of space in Auslan (de Beuzeville, Johnston, & Schembri, 2009), another 50 as part of a research project investigating the grammaticalization of FINISH-related signs in Auslan (in which the mouth actions associated with all FINISH-related signs was annotated) (Johnston, Cresdee, Schembri, & Woll, 2015; Johnston, van Roekel, & Schembri, 2016), and another 89 in which clause level units have been delimited throughout and core constituents identified (Ferrara, 2012; Gray, 2013; Hodge, 2013; Ferrara & Johnston, 2014; Hodge & Johnston, 2014; Johnston, 2019). This subset consists of approximately 15,000 clauses.

2.1 The annotation files

The Auslan Corpus is being annotated using digital video annotation software called ELAN (Crasborn & Sloetjes, 2008)[6]. The software allows for the precise time-alignment of annotations with the corresponding video sources on multiple user-specifiable tiers. The Figure 1 shows just the glossing and translation tiers, with the selected time period for LOOK highlighted in blue.

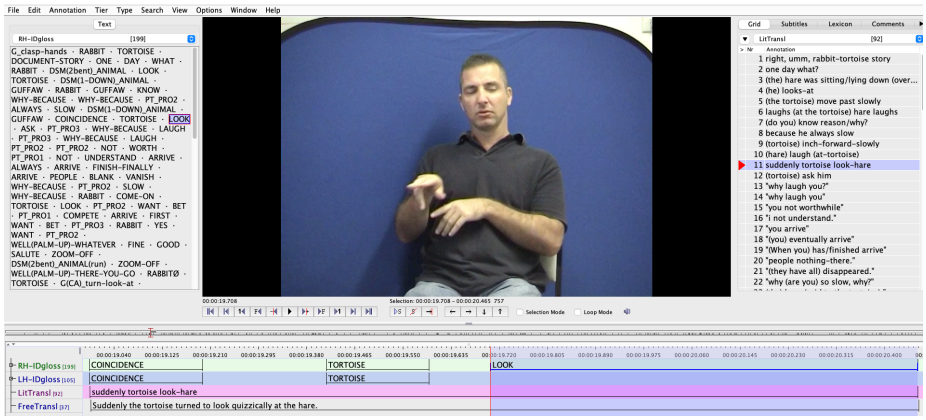


Figure 1 An open ELAN annotation file.

ELAN allows one to create, edit, visualise and search annotations for video data. It supports display of video with its annotation; time linking of annotations to media streams; linking of annotation to other annotations; unlimited number of annotation tiers defined by users; different character sets; export of annotations as tab-delimited text files and a complementary

[5] Detailed annotation files are not found in the Auslan Archive deposit in the ELAR at SOAS because they were added after the project that created the deposit was completed.
[6] Downloadable from http://tla.mpi.nl/tools/tla-tools/elan/

ability to import text file annotations and controlled vocabularies (henceforth CVs). Relevant metadata for the digital recordings is appended to media files.

2.1.1 File naming conventions

The ELAN annotation files (extension .eaf) and their linked digital video media files have exactly the same name, based on the following schema (Table 1):

Table 1 Filename structure

City	Initials	Task code	Sex	City	Age	Nativeness	Handedness
S = Sydney	**TJ =** Trevor Johnston	**c1 =** "clip task #1"	**M =** "Male"	**S =** Sydney	**72**	**N =** native	**RH =** right handed

Thus STJ_c1_S_M_72_N_RH is an annotation file or a media file for the participant Sydney Trevor Johnston (the person identifier) in task #1, who is Male, from Sydney, aged 72, a native signer and right handed. There are nine tasks (c1-c9), five cities (Brisbane, Sydney, Melbourne, Adelaide, Perth), two nativeness types (Native, Near-Native), and three handedness conditions (right-handed, left-handed, and ambidextrous).

The file name is also found within the annotation files. Whenever clauses (or what we also call 'clause-like units' (or CLU, see §3.3.2.1) have been delimited, they are numbered sequentially (*Tier>Label and Number Annotations*…) with the file name inserted as a prefix. Thus identifier for the first CLU in STJ_c1_S_M_72_N_RH is STJ_c1_S_M_72_N_RH_CLU#01.

Together these conventions for naming annotation files and clause delimiters mean that in many operations of searching and data export in ELAN, the results can be easily processed with reference to sociolinguistic variables without further time-consuming coding because some basic metadata is visible in the file path name or in the clause annotation.

The original high definition digital video tapes used to record the session pairs are named according to the schema: Person_Camera_Tape. The person ID is the same three letter code in the annotation and media files, the camera on the left (filming the person on the right) was assigned the code A, and the camera on the right (filming the person on the left) the code B. The recording sessions lasted 3 hours and required 3 one-hour digital video tapes. The tapes were numbered #1, #2 or #3.

The three letter person identifier which is based on the city code and the persons initials is scrambled in publicly accessible corpus files.

2.1.2 The tiers

The annotation files are created in ELAN using a template file that specifies the type of tiers that are available regardless of whether or not they are used in any particular annotation file. Additional study-specific tiers can be added at any time to an annotation file, but it is advisable to have a template that can meet the needs of many researchers so that the same annotation file may be easily and repeatedly used for different purposes. The Auslan Corpus template uses the tiers shown in Table 1.

Table 2 Main tiers used in the Auslan Corpus*

Parent tier ↳ Child tier	Expanded name	Linguistic type
RH ID-gloss*	**Gloss**	**BasicAnnotation**
↳ RH-Mean	Meaning	BasicTag
↳ RH-GramCls	Grammatical class	GramCls
↳ RH-Transcrip	Transcription	BasicTag
↳ RH-Handsh	Handshape	BasicTag
↳ RH-Orient	Orientation	BasicTag
↳ RH-Loc	Location	BasicTag
↳ RH-Move	Movement	BasicTag
↳ RH-NonMan	Other non-manuals	BasicTag
↳ RH-OtherPhon	Other phonetic/phonological	BasicTag
↳ RH-ModOrVar	Citation modification or variation	ModOrVar
↳ RH-Freq	Lexical frequency	BasicTag
↳ RH-CAco	Co-occurrence of sign with CA	BasicTag
LH ID-gloss*	**Gloss**	**BasicAnnotation**
↳ LH-Mean	Meaning	BasicTag
↳ LH-GramCls	Grammatical class	GramCls
↳ LH-Transcrip	Transcription	BasicTag
↳ LH-Handsh	Handshape	BasicTag
↳ LH-Orient	Orientation	BasicTag
↳ LH-Loc	Location	BasicTag
↳ LH-Move	Movement	BasicTag
↳ LH-NonMan	Other non-manuals	BasicTag
↳ LH-OtherPhon	Other phonetic/phonological	BasicTag
↳ LH-ModOrVar	Citation modification or variation	ModOrVar
↳ LH-Freq	Lexical frequency	BasicTag
↳ LH-CAco	Co-occurrence of sign with CA	BasicTag
ClauseLikeUnit(CLU)	**Clause-like unit ('utterance/meaning unit')**	**BasicAnnotation**
↳ RH-Arg	Argument identification	ClauseArguments
↳ RH-MacroR	Macro-role of argument	MacroRoles
↳ RH-SemR	Semantic role of argument	SemanticRoles
↳ RH-overtSUBJ?	Overt subject?	overtSUBJ?
↳ LH-Arg	Argument identification	Arguments
↳ LH-MacroR	Macro-role of argument	MacroRoles
↳ LH-SemR	Semantic role of argument	SemanticRoles
↳ LH-overtSUBJ?	Overt subject?	overtSUBJ?
CLUcomplex	CLUs overtly related to each other	CLUcomplex
↳ OvertDependencyType	Nature of expression of dependency	BasicTag
CLUwithinCLU	Complement and embedded CLUs	CLUwthinCLU
↳ OvertEmbeddedType	Nature of expression of embeddedness	BasicTag
CLUcomposite	Sentence complexity	CLUcomposite
CLUmood	Mood	BasicAnnotation
EventTypeCLU	Event type or Aktionsart	BasicAnnotation
CLUtransitivity	Transitivity type	BasicAnnotation
LitTransl	Literal translation	BasicAnnotation
Non-manual & other		
CA	Constructed action or constructed dialogue	BasicAnnotation
↳ CA-Arg	Argument identification	ClauseArguments
↳ CA-MacroR	Macro-role of argument	MacroRoles
↳ CA-SemR	Semantic role of argument	SemanticRoles
↳ CA-overtSUBJ?	Overt subject?	overtSUBJ?
Body	Body	BasicAnnotation
Face	Global description of facial expression	BasicAnnotation
Head	Head movements	BasicAnnotation
Gaze	Direction of eye-gaze	BasicAnnotation
Eye&Brow	Eye and brow movements	BasicAnnotation
Mouthing	Mouthing (of words)	BasicAnnotation
↳ MouthingGCl	Grammatical class of mouthed English word	GramCls
MouthGestF	Mouth gestures form	BasicAnnotation
↳ MouthGestM	Mouth gestures meaning	BasicTag
FreeTransl	**Free translation**	**BasicAnnotation**
Comments	**Comments**	**BasicAnnotation**

* The term 'ID-gloss' is explained in §3.2.2.

Most tiers have yet to have any annotations entered in them for the vast majority of video files. The absolute minimum number of tiers in an annotated file in the corpus should be

three: one gloss tier for each of the hands, and one for free translations. (However, due to time constraints many annotation files have yet to be given a translation even though they have already been glossed, or vice versa.)

The Auslan Archive deposit in the ELAR at SOAS only has annotation files that have either two glossing tiers (RH-ID-gloss & LH-ID-gloss), three tiers (the glossing tiers and free translation), or four tiers (the glossing and free translation tiers, and the literal translation tier). There are no other annotations in that deposit.

2.1.3 The linguistic types

For parent tiers that do not have an associated stereotype and do not use a CV we assign the linguistic type called *BasicAnnotation*. If a parent tier uses a CV we assign it to a linguistic type which is named after that CV.

Child or dependent tiers tag an annotation on a parent tier for phenomena we hypothesise are part of linguistic coding in the language or which are otherwise relevant in the analysis of the lexicon and grammar of the language. When a child tier has no associated CV we define it as the linguistic type BasicTag with the stereotype *Symbolic Association*. When a child tier has an associated CV we name after its CV. These tiers also have the stereotype Symbolic Association, except the RH-Arg ('right hand argument') and LH-Arg ('left hand argument') daughter tiers of the clause level tier which have the linguistic type ClauseArguments which has the stereotype *Included in* (Table 3).

Table 3 Current linguistic types in the Auslan Corpus

Current Types

Type Name	Stereotype	Use Controlled Vo...	DC ID	Time-align...	References...
BasicAnnotation	-	-	-	✓	-
BasicTag	Symbolic Associat...	-	-	-	-
GramCls	Symbolic Associat...	GramCls	-	-	-
ModOrVar	Symbolic Associat...	ModOrVar	-	-	-
MacroRoles	Symbolic Associat...	MacroRoles	-	-	-
SemRoles	Symbolic Associat...	SemanticRoles	-	-	-
ClauseArguments	Included In	ClauseArguments	-	✓	-
Gaze	-	-	-	✓	-
Eye-brow	-	-	-	✓	-
Body	-	-	-	✓	-
overtSUBJ?	Symbolic Associat...	overtSUBJ?	-	-	-
Frequency	Symbolic Associat...	-	-	-	-
CA-co	Symbolic Associat...	-	-	-	-
Face	-	-	-	✓	-
HypotacticType	Symbolic Associat...	HypotacticType	-	-	-

2.1.4 The three phases of annotation

The transformation of archived media into a linguistic corpus occurs in three phases of primary, secondary and tertiary processing. Primary and secondary processing are described in these guidelines.

Table 4 The three levels of corpus processing in brief

Primary processing	Secondary processing	Tertiary processing
Basic*: segmentation, tokenization & translation:* ID-glossing, parallel free translation; Detailed: *non-manuals* body, head, face	*Sub-categorization of constructions signs, utterance units, & constituency:* part of speech, constituency in phrases, clauses; clause complexes, depictions, clause-based literal translation, etc.	*Incorporation of information derived from the co-occurrence of various values from primary and secondary processing into tags inserted into the corpus:* frequency tagging, construction type tagging, etc.

2.1.4.1 Primary processing

Primary processing occurs in two phases: basic annotation or detailed annotation.

Basic annotation The basic level of corpus annotation involves *segmenting* the Auslan text into sense units that a free translation into written English aligns comfortably with, and *segmenting* and *tokenising* the Auslan text into individual signed units and then *glossing* these units.

Detailed annotation The detailed level of corpus annotation involves annotating other types of linguistic and communicative activity, including those involving non-manual activity. As can be seen from Table 2, there are dedicated tiers for all of these aspects of non-manual behaviour. All these non-manual behaviours need to be able to be annotated in order to assist in the determination of their role in the lexico-grammar of any SL.

2.1.4.2 Secondary processing

Secondary processing entails the addition to the annotations already created in primary processing of information ('tags') that sub-categorise constructions of various sizes from individual signs to phrases, clauses, and complex sentences, and the identification of their constituents. Secondary processing thus adds phonological, morphological, semantic, syntactic, pragmatic and discourse information about linguistic forms, depending on the purpose of the analysis. Some tiers use CVs.

2.1.4.3 Tertiary processing

The opportunities opened up by annotating digital video SL corpora in the ways outlined above mean that it is possible to manipulate through searching and sorting the primary and secondary annotations to extract frequency characteristics or co-occurrence patterns. This information can then, in turn, be added to the corpus, e.g., by way of additional tags to existing glosses or clause annotations, to enrich it further and make possible further more sophisticated analyses taking these values into account.

The types of annotations used in tertiary processing and the ways they can be manipulated or processed both within ELAN or after being exported into spreadsheet or statistical programs are not discussed in these annotation guidelines because they vary considerably depending on the questions being raised in the research for which the annotations have

been made. Some tiers created during tertiary processing are removed from the corpus file after being used to profile a phenomenon because their annotation values change as the number of annotation files in the corpus grows.

Descriptions of tertiary processing implemented in the Auslan Corpus files can be found in the methods section of many of the research publications that report on specific studies. These studies can be found in the reference list to these guidelines because they have all been cited in them.

2.1.5 Annotation rather than transcription

The recordings were annotated using these glossing conventions, rather than transcribed, so as to achieve some degree of machine readability and hence searchability as quickly as possible (Johnston, 2010b, 2014). *Transcription* usually refers to the graphic representation of an utterance using a dedicated notation system (such as IPA for SpLs or HamNoSys for SLs[7]) or written script (orthographic transcription) (MacWhinney, 2007; Tagliamonte, 2007). Anyone familiar with the graphic symbols of a transcription is meant to be able to reproduce the intended utterance. By way of contrast, traditionally an *annotation* is any kind of commentary added to an already existing transcribed or written text. Annotations append linguistically relevant information to known units in a language, such as the grammatical class of words or signs. In SpL corpora, they often appear as codes or abbreviations suffixed to words (aka *tags*).

In the Auslan Corpus, however, there really is no linear written or transcribed text which one could sound out ('sign out') as with SpLs. Rather, the glossing in the Auslan Corpus simply identifies sign units in the sign stream which then act as time-aligned anchor points for other annotations and tags. Additional linguistic annotations (including those that transcribe or code for features of sign form) can, in turn, be aligned to the gloss on other tiers in the ELAN file (see §4.1.1). In this way, transcription itself ceases to be a necessary first step in linguistic analysis. The recording *is* the text.

[7] HamNoSys is the Hamburg Notation System for SLs (Prillwitz & Zienert, 1990)

3 Primary processing

Primary processing occurs in two phases or at two levels: basic annotation or detailed annotation. The basic level of corpus annotation involves segmenting the Auslan text into sense units that a free translation into written English aligns comfortably with, and segmenting and tokenising the Auslan text into individual signed units and then glossing these units. The detailed level of corpus annotation involves annotating other levels of linguistic and communicative activity, including those involving non-manual activity.

3.1 Segmentation of video for basic annotation

Speaking and signing produces a continuous stream of words and signs and, just as there are no silences between words when we speak (except, of course, when there are natural or deliberate pauses), there are no real gaps between signs when signing. Signers do not crisply articulate one sign after another, returning to a neutral position between each sign, nor can a sign sequence be articulated without any transitional movements between each sign. Ignoring or editing out transitional movements falsely implies periods of no signing activity ('silence').[8]

There should therefore be relatively little space (i.e., time) between each sign annotation field, unless there is an obvious or deliberate pause. However, it is recommended that a small gap of at least a frame be left between sign annotation fields on a tier to ensure that time overlaps or alignments are correctly identified during multi-tier searches. (In earlier in early versions of ELAN a query based on annotations being fully-aligned or overlapping on more than one tier could give unexpected results when the query annotation field also abutted annotations on either side of it.)

As a general rule a sign starts:

a. when the hand or hands appear to change direction, having completed all movement relevant to articulation of the just articulated sign, and/or
b. when the hand or hands start to change handshape, assuming one that is not part of the just articulated sign.

A sign ends:

a. just before the hand or hands appear to change direction, having completed all movement relevant to articulation of the current sign, and/or
b. just before the hand or hands start to change handshape, assuming one that is not part of the current sign.
c. when the hand or hands begin a return to a rest position (e.g. folded arms, hands on hips, laps, or some supporting surface or object, or arms resting at the side of the body).

[8] This could have serious consequences when calculating the ratio of the co-temporal duration of non-manual prosody (e.g. facial expressions, eyebrow raise, etc.) or spatial displacements (e.g. body shifts) with manual articulations as a part of total text time.

A pause in which the hand or hands are held steady in a location (with the same handshape being maintained) is considered to be a continuation of the articulation of the sign if it appears deliberate and meaningful. The annotation field continues until the hold is released and the hands return to rest or move in order to perform another sign.

3.2 Basic primary annotation

The preferred minimum number of tiers in an annotated file in the corpus is three: one for the free translation and two gloss tiers. New annotated files are created using these tiers, with free translation being added first because experience with the Auslan Corpus showed that it was the quickest way to create searchable text because segmenting into signs and glossing them is a slow process. Initially (2004-2008) texts were only segmented into signs which were glossed. Those gloss-only annotation files are being enriched with translations whenever time and resources become available.

3.2.1 The free translation tier

A written free translation is provided as the very first step in creating a basic annotation file for a video. The free translation is placed in annotation fields that are time aligned with 'chunks' of the signed text that appear to form a coherent unit based on meaning or delivery. With respect to meaning, one chooses a stretch of signing that comfortably aligns with what one might potentially say, or write, in an English sentence. With respect to delivery, the translation unit is likely to be bounded or delineated by pauses, head nods, or changes in visual-gestural intonation and rhythm. However, experience tells us that a typical English translation unit is likely to span several Auslan clauses. In other words, the English translations are not attempts to segment the Auslan text into its potential language-specific syntactic or grammatical units. That is done with the annotation of a CLU (Clause-like unit) (see §3.3.2.1).

A written translation is preferred to dubbing in spoken English as it provides an immediately and easily searchable text. This is a practice that has also been adopted in other corpora, see (Crasborn, Zwitserlood, & Ros, 2008; Cormier, Fenlon, Rentelis, & Schembri, 2011). Because the translation is a parallel text, even if no other processing of the corpus occurs in the short term, it is still possible to use the translation to compare sections of the SL text and investigate the symbolic units that tend to co-occur with particular English expressions or grammatical forms.

3.2.2 The ID-gloss in the Auslan Corpus and in Auslan Signbank

In linguistics, *glossing* means the practice of giving an approximate equivalent of a word in one language using a word of another language. In SL corpus creation, if one is not using a SL-dedicated transcription system or writing system, then tokens of sign types should all be consistently, invariably and uniquely glossed to remove any ambiguity about the sign being

referred to. Consequently, in the Auslan corpus each token of a type has the same identifying gloss which is unique to that type, which we call an *ID-gloss*. Written ID-glosses are a basic tool in creating a machine-readable annotated linguistic corpus.

An ID-gloss names a conventional lexical sign (the type or lemma) of which the particular instance in the corpus is a token (Johnston, 2001, 2008d, 2010b), which may be like the basic citation form, one of its common phonological variants, or even morphological modified forms (Fenlon, Schembri, Johnston, & Cormier, 2015). For example, the verb GIVE is always assigned the same ID-gloss regardless of how it has been modified to express person, number or aspect (hence simply reading the ID-gloss will not tell one if or how the verb was modified). Each ID-gloss remains unique, so that even in cases where two or more signs could be glossed using only one and the same English word their ID-glosses will be distinct.

The *Annotation ID-gloss* used in the corpus, is slightly different to the ID-gloss used in the lexical database or on-line dictionary of Auslan, known as Auslan Signbank (www.auslan.org.au), which uniquely names each entry. An entry may be a citation form of a sign or an attested common, i.e., not idiosyncratic, phonological variant form of one. This dictionary *ID-gloss* is based on the corpus *Annotation ID-gloss*. For example, the Auslan sign meaning 'house' has two common forms which are entered in Signbank and identified with the ID-glosses *house1a* and *house1b* respectively: *house1a* is the most common or citation form and *house1b* is a variant made with a different handshape (see §3.2.5.3 for more information on variant forms). In the corpus, both tokens have the same *Annotation* ID-gloss, namely HOUSE. Each entry in Signbank is identified with these two types of ID-gloss. In order use ID-glosses effectively and consistently, annotators refer to Signbank.

Thus, in the ideal corpus-building situation, it is not expected that one would begin to gloss a SL text[9] without first having conducted basic lexicographical research into the language and documenting this in a dictionary, even if it is only provisional or incomplete. However, in circumstances of critical language endangerment, there may be no time to do this before there are no speakers/signers remaining. One would need to rely on parallel translations at some later stage to begin the difficult process of tokenizing the text and identifying possible form-meaning pairs and attempt to construct a lexicon.

When Auslan signs are referred to in speech or in print there is no expectation that one should use ID-glosses. The ID-gloss is not some 'official' name or translation for a sign. Indeed, ID-glosses used out of the dictionary or corpus context could confuse the non-specialist because they do not necessarily capture the meaning of a sign in a particular usage event. A simple contextually appropriate *gloss* is all that may be needed. One of the keywords, or translations, associated with a sign, which are listed in Signbank, is likely to be appropriate as a contextual gloss.

Should there be a need or desire to specify a particular sign and not just its meaning in technical contexts, such as linguistics, one can use dual interlinear glossing, with the ID-

[9] By text we mean any planned or unplanned coherent stretch of language (in this case, therefore, a video recording) and not something which is necessarily written or transcribed.

gloss on one line with an aligned contextual gloss on another line. Alternatively, hyperlinked contextual glosses could take the reader to the intended ID-gloss and/or the intended Signbank entry where they can see both the ID-gloss and a video of the sign.

Henceforth in these guidelines 'ID-gloss' refers to the Annotation ID-gloss used in the corpus, unless stated otherwise.

3.2.3 The glossing tiers

Two tiers, one for each hand, are used to segment and gloss signs. For a right-handed signer, if the left hand is involved in articulating a normally two-handed sign then that hand is also glossed (it has the same gloss as the right hand). Naturally, a one-handed sign is only annotated on the hand that articulates it. The independence of each tier can then be exploited to show if two different signs are being articulated at the same time or if the articulation of one hand spreads over the time interval of more than one sign of the other hand when this appears to be meaningful.

Note 3: Hand dominance & handedness

A note on hand dominance and handedness All multi-media recordings of face-to-face language need to deal with issues of simultaneity (intonation, gesture, conversational overlap etc.). Though this issue is not unique to SLs the fact that signers use two hands means the issue is particularly important. After all, one hand can intentionally articulate a sign when there is nothing articulated on the other hand, or simultaneously with a second sign on the other hand. Therefore, provision must be made to annotate each hand independently when required. The two hands may be identified simply as the left and right hand or labelled the dominant (or strong) and the subordinate (or weak) hand respectively according to the handedness of the signer. The Auslan Corpus adopts left and right hand labels while the Swedish SL corpus labels each as the strong or weak hand, following the handedness of the signer. We prefer simply to annotate the activity of the left and right hands of the signer (naturally inverting from the video image—we do not mean 'the left hand in the video' but 'the left hand of the signer') because doing this means that annotators only need to make one type of reversal regardless of the actual left or right handedness of the signer (rather than constantly thinking 'is the signer right-handed or left-handed, so should I put the annotation on the strong or weak hand tier. There are ways using ELAN for aggregating all the annotations according to the hand dominance of the signer even if one has adopted the literal left and right hand labels.

3.2.4 Glossing different types of signs

The glossing conventions used in the corpus were originally developed to distinguished signs based on *lexicality* because an important early observation during the creation of the Auslan dictionaries in the 1980-90s (Johnston, 2001)[10] was that many of the signs found in a typical text in Auslan were not ***conventional lexical*** signs of the language, i.e. having relatively stable forms and meanings which could or should be entered in a dictionary of the language. Rather, signers often produced either pointing actions or visual representations of the size, shape or displacement of something.

We call these ***symbolic indexical*** signs because they are combinations of conventional and indexing elements. In yet other contexts, signers produced enactments of someone doing something or behaving in a certain way, including producing gestures of various

[10] The dataset for the dictionaries was known as the Auslan Lexical Database (Johnston, 2001), which is now called 'Auslan Signbank'.

types—some of which were also used by hearing non-signers. We call this third type in these guidelines ***non-conventional*** signs. [11]

These three strategies led Auslan researchers to distinguish three types of sign in Auslan. See Johnston (2013) and Johnston and Schembri (2010), for a detailed description of these sign types.[12]

With respect to corpus annotation, the specific glossing conventions are different for each of these three different types of signs (see below) . This makes them easily identifiable and thus easy to include or exclude in any corpus-wide searches, sorts and processing.

3.2.5 Conventional lexical signs and the ID-gloss

Conventional lexical signs are easily identified using an ID-gloss which is written in upper case or small caps:

(1)

Note 4: Interlinear glossing versus ELAN .eaf screen grabs

Interlinear written examples (based on informal observation and memory) are slowly being replaced with example screen grabs from the corpus. In order to save space, these grabs are relatively small. You will need to enlarge this pdf by up to 200% in order to read the annotations in the screen grab.

The ID-gloss is retrieved from *Signbank* or assigned if no entry already exists for the sign form. To retrieve the ID-gloss the annotator searches the database using one of the English keywords associated with the sign or by specifying one or more formational feature. If a sign needs more than one distinct English word to gloss it, they are separated by hyphens (spaces are not used), e.g.,

(2)

[11] Another phenomenon relating to lexicality was observed in fieldwork and elicitation. Many signers often produced what were ad hoc explanations or descriptions of a thing or concept rather than a conventional sign, compound or multi-sign expression. This was evidenced by the fact that each signer produced different sequences of signs for the same concept, even if the string was itself entirely composed of conventional signs. In other words, there actually was no conventional lexical unit which could be added to a dictionary of the language.

[12] Johnston and Schembri (1999) originally called these three types of signs fully lexical signs, partly lexical signs, and non-lexical signs, but this terminology has been superseded.

It is preferred that each ID-gloss is a unique English word (or two or more hyphenated words). However, at times, some common high frequency English words may need to be used more than once to gloss equally common or high frequency Auslan signs because the English word may be very strongly associated with both Auslan signs. Auslan signers expect or insist that the associated word should be used in the gloss for each sign. There are two solutions to this problem.

In the first (preferred) solution, if one of the pair of signs has another sense ('keyword') associated with it which the other in the pair does not, or has an underlying sense derived from the signs apparent iconic motivation, then the sense word or an iconic descriptor is added with a hyphen to the ID-gloss for that sign. For example, there are two signs in Auslan that have the core meaning 'adopt' and thus both could be glossed ADOPT. It so happens that one of them can also mean 'take', so it is glossed ADOPT-TAKE, while the first remains simply ADOPT. Similarly, there are two signs for 'dentist' in Auslan. One is iconically motivated as the action of extracting a tooth, the other is iconically motivated as the action of packing or pressing a filling into a tooth cavity. The second has been given the ID-gloss DENTIST-FILLING to distinguish it from the first, which can remain simply DENTIST.

The second solution is to append a hint after an underscore to the preferred gloss word. The hint helps distinguish the two signs competing for the same gloss. This solution is used where there is no real meaning or relevant iconic difference between the two signs. For example, the sign for 'who' is different in the traditional northern and southern dialects of Auslan (but the northern form appears to be giving way to the southern form). The northern dialect sign is given the ID-gloss WHO_NTH while the other is simply glossed WHO. Similarly, there are at least two signs in Auslan that are best glossed as FINISH. One is made with the  ('good') handshape and one is made with the  ('five' or 'spread') handshape. They are glossed as follows:

(3) FINISH_GOOD

(4) FINISH_FIVE

These hints are not closely related to the meaning of the sign as are the words separated by hyphens in other ID-glosses. They can be based on any feature of one of the signs which Auslan users would agree distinguishes one form from the another. Importantly, this appended hint helps annotators remember the ID-gloss.[13] The word or symbol after an underscore in an ID-gloss should thus not be construed to be part of the meaning of the ID-gloss in some way.

[13] In earlier versions of the annotation guidelines for ID-glossing, the primary glossing words were reused and sequence numbers were simply added to it, in order of their creation (e.g. BEFORE1, BEFORE2, BEFORE3). This system proved to be too opaque. Annotators found the numbers too difficult to remember and they have been replaced by hyphenated glosses, or glosses with hints after an underscore.

3.2.5.1 The meaning tier (contextual gloss)

There are two main uses for the meaning tier. First, it records the meaning of a sign when no ID-gloss appears to be available because the appears to be a new and unrecorded lexical sign. The annotator chooses the simplest English word to gloss that sign as appears to be appropriate given the context, appends their initials to that temporary gloss, and adds a few words of meaning explanation on the 'meaning' tier. In the following example, the ID-gloss CONTRITION has been assigned by an annotator (e.g., TJ, Trevor Johnston) to a sign and it means something like 'contrition', 'remorse', 'regret' or 'sorrow'.

(5) ID-gloss CONTRITION-TJ
Meaning contrition/remorse/regret/sorrow

If the newly identified sign is subsequently confirmed as an unrecorded conventional lexical sign, an entry is created in dictionary and an appropriate unique ID-gloss assigned to the sign form. The existing glosses in the corpus for this sign are then updated.

Second, the tier records a meaning for a sign which has yet to be listed as a keyword for that sign in the lexical database, i.e., this is potentially a simple omission in the database, but it may also be a nonce usage of the sign. At least the tag allows for the annotator's 'act of interpretation' to be recorded at the token of the ID-gloss for future consideration. Over time, a larger corpus may help resolve the issue.

The tier can also be used for a contextual gloss for symbolic indexical signs and non-conventional signs which have their own glossing conventions.

3.2.5.2 Repetition or reiteration

Sometimes a sign is repeated and sometimes the movement component of a sign is modified by repeating it. It is often difficult to distinguish between the two. Each has different consequences on the meaning of a sign. If a sign looks like it would be translated with a single English word that would have grammatical modifications (e.g. WAIT repeated translated by 'waiting' instead of 'wait') or by a phrase (e.g. WAIT repeated translated by 'wait for a really long time') then one annotation and gloss is used. In this case the gloss would be WAIT. The modifications (repetition) of the sign are treated as *grammatical* in nature. Grammatical information is coded on other dedicated tiers of the annotation file.

However, if a sign looks like it really is being repeated (i.e., is said more than once) and would equally be translated by a repeated English word, then each instance should be annotated separately. (If unsure, it is recommended that annotator makes a comment on the *comments* tier.)

3.2.5.3 Modified and variant sign forms

Because no word or sign is ever pronounced or produced absolutely in the same way at each utterance event, it should be self-evident that minor individual variations in sign form are ignored when glossing. However, individual variation of this kind must be distinguished from the many changes or modifications in word or sign form that are deliberate and

meaningful, many of which may be considered to be grammatical (inflectional) or lexical (derivational) in some way.

Where modifications are grammatical or inflectional in character they are also ignored at the ID-glossing level, but they are not unimportant. While the ID-gloss identifies the sign, other information about the grammatical class of the sign, the type of modification it has undergone and its significance, can be entered on other aligned annotation tiers during secondary processing, usually as part of specific grammatical studies.

Where modifications are derivational in character they are associated with a new or separate conventional lexical sign form, which is thus listed in the lexical database and assigned its own ID-gloss, distinguishing it from the sign from which it is derived.

As mentioned above (§3.2.2), sometimes a sign form appears to be a minor variant of a more common or standard form, using a slightly different handshape, movement or location. They can be found in dictionaries of Auslan, e.g., Signbank. If the frequency and environment of variant forms *is the very focus of corpus analysis* then the relevant feature can be explicitly tagged on the transcription tiers. Noteworthy variants tagged in this way, e.g., exemplifying phonological processes, may then be subsequently more easily retrieved from the corpus by researchers. Variation may also warrant tagging because later frequency counts justify it being added to Signbank simply because it has not been documented.

Note 5: Transcription of (phonetic) form

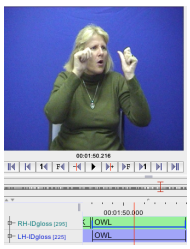
The first aim in corpus annotation is the creation of a reference machine-readable text. Of course, sign form is not unimportant. However, the best strategy for a multi-purpose corpus is to tokenize a text into its major symbolic units (signs) *first,* before *then* adding detailed time aligned information on sign form to this reference 'text' on other dependent or independent tiers, as required.

3.2.5.4 One-handed and two-handed forms

The corpus does not label the right or left hands as 'dominant/strong' or 'subordinate/weak'. They are labelled literally as right hand (RH) and left hand (LH). The hand dominance of the signer (right handed or left handed) is recorded in the metadata for that individual *(which also appears* in the name of the actual annotation file, as described above (§2.1.1).

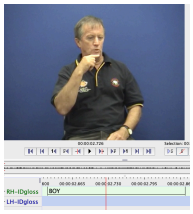
If the sign is two handed (e.g. OWL), the ID-gloss is written on two tiers (or lines), one for each hand.

(6)



If it is one handed, it is annotated on the hand the sign is on, even if it is the signer's non-dominant hand. Nothing appears during the time span on the non-active hand tier.

(7)



Some signs are always one-handed and some are almost always two-handed. However, some signs can be one- or two-handed. When these signs are listed in the lexical database the most common form is given base form status and the other is given variant status. However, it is often difficult to establish which is the most common or unmarked form (the citation form). The expansion and enrichment of the corpus makes it possible to confirm or disconfirm information recorded in the lexical database. For example, evidence from the corpus that GLASSES is actually more frequently produced as a one-handed rather than a two-handed sign has led to the lexical database being revised accordingly.

Note 6: Searching and filtering annotations

One can use *File* > *Export Multiple Files As* > *Annotation Overlaps Information* in Elan to export RH-ID-gloss and LH-ID-gloss annotations and inspect and sort them in a spreadsheet. It will quickly become apparent if the one- or two-handed form of a sign is the most common and/or if it varies systematically for some reason (e.g., dialect, age of signer). The lexical database can then be updated accordingly based on these attested forms.

If a different sign occurs on each hand, a different annotation gloss is made on each hand, as appropriate.

(8)

3.2.5.5 Collocations versus compounds

Two signs that are regularly signed together could be a collocation or they could be a multi-word lexical item.

Collocations are an habitual pairing of two signs or words—the appearance of one leads one to expect the other, in a particular order (e.g. ‘black and white’ not ‘white and black’ in English). Collocations are written as two separate annotations, no matter how frequently they appear together, or how rapidly the two are signed in sequence.

By contrast, a multi-word lexical item is an erstwhile collocation of two separate words that have become lexicalized as a unit. For example, in English the sequence of words *cash machine* or *cash dispenser* are multi-word lexical items (they mean an automatic teller machine or ATM). An ATM cannot be referred to as *money machine* (which would mean a machine for making money). In Auslan CASH MACHINE appears to be simply a calque of the

English and is not (yet) lexicalised, as one can change the order (MACHINE CASH) as well as refer to the same object as a MONEY MACHINE, or MACHINE MONEY.

If the annotator in the Auslan corpus comes across any sequence that appears fixed and lexicalised the two source sign glosses are usually simply joined together and separated by a hyphen to create a new ID-gloss, e.g., WRONG-MIND is a compound that means something like 'guilt', 'regret', 'shame at being caught doing the wrong thing'. It is not just a collocation. The ID-gloss of most Auslan compounds, however, use a different English word if there's a one word equivalent in English, e.g., THINK + FINISH has the ID-gloss RELIEVED.

In most SpL or SL compounds there is also usually phonological reduction between the two words. The reduction can be relatively minor, e.g., simply reducing repeated movements in each member of the compound as in BREAKFAST from EAT + MORNING; or it may be quite marked e.g., TOMATO is a blend of RED + BALL, which can come as a surprise to some signers when it is pointed out to them.

If a collocation appears to be a compound but cannot be found in Signbank, the sign should be written as one gloss separated by hyphens and follow the guidelines for a newly identified conventional lexical sign, see example (5).

Table 5 The use of hyphens and underscores in ID-glosses

Form of gloss	Meaning
GLOSS	An English word used as a gloss for a sign
GLOSS-GLOSS	If more than one English word is needed to gloss a sign, and each word is related to the meaning of the sign, they are separated by hyphens. Also used in compound signs where the ID-gloss consists of the glosses two elements of the compound joined together.
GLOSS_HINT	If one cannot avoid using the same English word to gloss two or more signs an underscore is used to separate a second word after the common first gloss to distinguish them (i.e., the second word "hints" at which one of the two is intended, according to any criteria that helps annotators distinguish them). The second word is not formally part of the meaning of the glossed sign.

3.2.5.6 Numbers, digits, and number incorporation

If a signer uses a number to refer to anything (e.g. the year 1987) it is glossed using words, and not with digits.

(9) NINETEEN-EIGHTY-SEVEN or ONE-NINE-EIGHT-SEVEN not 1987

If a number is incorporated into a sign for units such as clock hours, years, weeks, days, age, etc., a hash symbol followed by the incorporated number (as a numerical symbol) is suffixed to the gloss, thus:

(10) YEAR-AGO#2 *not* TWO-YEARS-AGO or 2-YEARS-AGO

(11) AGE-IN-YEARS#14 *not* FOURTEEN-YEARS-OLD or 14-YEARS-OLD

(12) O'CLOCK#2 *not* TWO-O'CLOCK or 2-O'CLOCK

Unit signs that incorporate numbers have a default sign that also means one unit of the measure. Only this form is listed in the lexicon. For example, the sign WEEK also means 'one-week' even though it is simply glossed as WEEK. There is no need to specify #1.

These conventions make it easy to extract signs from the corpus by unit name and compare the number incorporation possibilities of each type, or to extract any other signs that display number incorporation.

3.2.5.7 Negative signs

There are several manual signs that function as negative signs in Auslan:

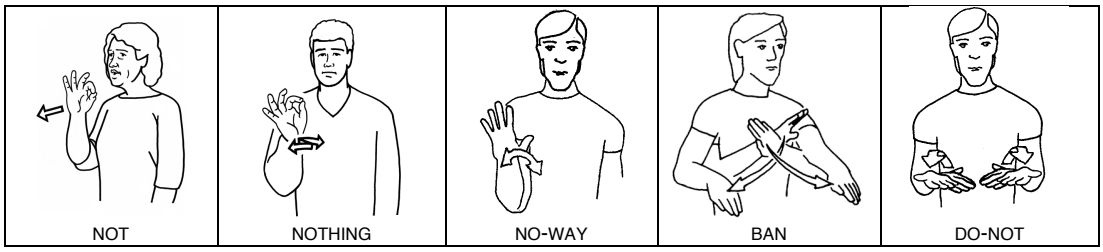


Figure 2 Negators (negative adverbs or particles) in Auslan

Despite each unique ID-gloss, all these signs can be translated or glossed as 'not', 'don't', etc., in English when they are used as negators. However, like many other signs in Auslan most of these signs have other functions too, e.g., NOTHING can be used as a pronoun (VILLAGE PEOPLE SEE NOTHING THERE), BAN can be used as a verb (POLICE BAN DEMONSTRATION BECAUSE COVID), and NOT can be used as the number ZERO (ZERO STUDENTS PASS TEST) without there being any clause negation in such cases. The grammatical class tag in an annotated text will indicate the way each of these signs is functioning in particular clauses (see §4.1.2.2).

3.2.5.7.1 Negative incorporation

Some Auslan signs that have a negative meaning appear to have a final element in the sign that involves an open upturned flat or spread hand. The ID-gloss for these signs in Signbank consists of a general meaning gloss followed by a gloss for the negative element after a hyphen (-*NOT*), as in

(13) HAVE-NOT *not* DON'T-HAVE or NOT-HAVE
(14) WANT-NOT *not* DON'T-WANT or NOT-HAVE
(15) WILL-NOT *not* WON'T

This order makes it easier to search and sort signs by ID-gloss, e.g., WANT and WANT-NOT will be next to each other if sorted alphabetically. Any newly identified negative signs that appear to have a final negative component should be glossed using this pattern.

Proper names in Auslan (also known as *name signs* or *sign names*) are prefixed with *NS_* followed by the proper name.[14] Thus a name sign for a person called *Peter* would be written as follows:

[14] In earlier versions of the guidelines the prefix was SN. It has now been changed to NS simply because no English word begins with this letter combination. This makes sorting and counting ID-glosses quicker and more efficient.

(16) NS_PETER

Additional information may be added, but is not required. For example, if the sign name is based on fingerspelling the relevant letter(s) and/or a hint regarding sign form can be added after the gloss.

(17) NS_PETER(P-shake)

If the sign name is identical in form to a lexical sign, the relevant sign may be identified after the name in brackets.

(18) NS_MISSKENTWORTH(HAIR-BUN)

3.2.5.8 Signed English signs and foreign borrowings

Lexical signs which are part of a signed system, e.g. Australasian Signed English, and which are generally not considered to be a part of Auslan have an ID-gloss that includes this information appended after a period. Thus

(19) GAVE_SE

is the ID-gloss of the Signed English sign GAVE.

If a sign is a recent or ad hoc borrowing from another SL, it is glossed as appropriate followed by the commonly accepted abbreviation for that SL. Thus

(20) COOL_ASL

is the ID-gloss of the sign COOL borrowed from ASL (American Sign Language).

3.2.6 Symbolic indexical signs

Symbolic indexicals are combinations of conventional and indexing elements. They have one or both of these two important characteristics: (i) they have little conventionalised or language-specific meaning *in addition to* that carried by their formational components (e.g. handshape, location, orientation etc.); (ii) they have a meaning that is incomplete in some way—one needs to refer to the context of utterance (the unfolding text and/or the actual utterance space) in a non-trivial way to 'complete' the meaning of the sign. In the SL linguistics literature, most signs described as depicting signs (also known as classifier or polymorphemic signs) and indexing signs (also known as pointing signs) belong to this category.

The glossing of *symbolic indexical signs* (pointing and depicting signs) is not as straightforward as conventional lexical signs ('give the sign a unique name'). One cannot simply consult a lexical database for the ID-gloss and apply it these signs because they have no real citation form.[15] The location, orientation, and movement of each token varies

[15] From this perspective, indicating verbs are symbolic indexical signs too because they move towards or between salient locations in the signing space associated with semantic roles such as AGENT and PATIENT, i.e., they are indexical as well. However, indicating verbs do have a meaning which is conventional and more than the sum of the meaning of their formational parts, as well as having a citation form

according to each usage event depending on the reality of the context of utterance (where participants are located) and how the signer and interlocutor have jointly established a scene of action in that context. In many symbolic indexical signs, the handshape and sometimes orientation are type-like features with a conventional semantic load. The tokens of these signs are glossed in schematic ways to show key features of their function and form in the usage event, rather than with an ID-gloss.[16]

Using these conventions, symbolic indexical signs can thus still be extracted from the corpus for analysis and comparison. Searches for frequency and collocations can be conducted using sub-string matches, based on the components of the gloss alone or aligned with annotations on other tiers, e.g., the grammatical class tier, the meaning tier, or the translation tiers.

3.2.6.1 Pointing signs

The basic pointing sign in Auslan uses the extended index finger directed at a target and it performs several different grammatical functions which, in English, are encoded in different words. The entanglement of Auslan and English in the semantics of pointing signs is complex. Figure 3 is a simple map of the function of pointing signs in Auslan aligned to various grammatical functions and grammatical word classes in English. One cannot ignore English in the identification of the meaning and function of many pointing signs because it is often the simultaneous mouthing of one of these English words that is the clearest marker of the intent of a point.

It is clear from Figure 3 that a single word form in English can simultaneously encode semantic features of the referent and its grammatical role in the utterance unit. Although there are some forms of pointing signs in Auslan that also signal grammatical function (e.g., possession, reflexivity), there are no Auslan pointing signs that encode the gender, the grammatical/syntactic role (e.g., subject/object) or the semantic role (e.g., agent/patient) of the target as in English. Modified or not, or accompanied by mouthing or not, Auslan pointing signs are literally pointing actions in a way English words are not.

(usually moving between signer and addressee). Consequently they are regarded as conventional lexical signs, assigned an ID-gloss and entered in the lexicon.

[16] Strictly speaking the glosses for symbolic indexical signs are more like annotations than glosses because they are not trying to capture the meaning of a sign only using a word from another language which approximates it.

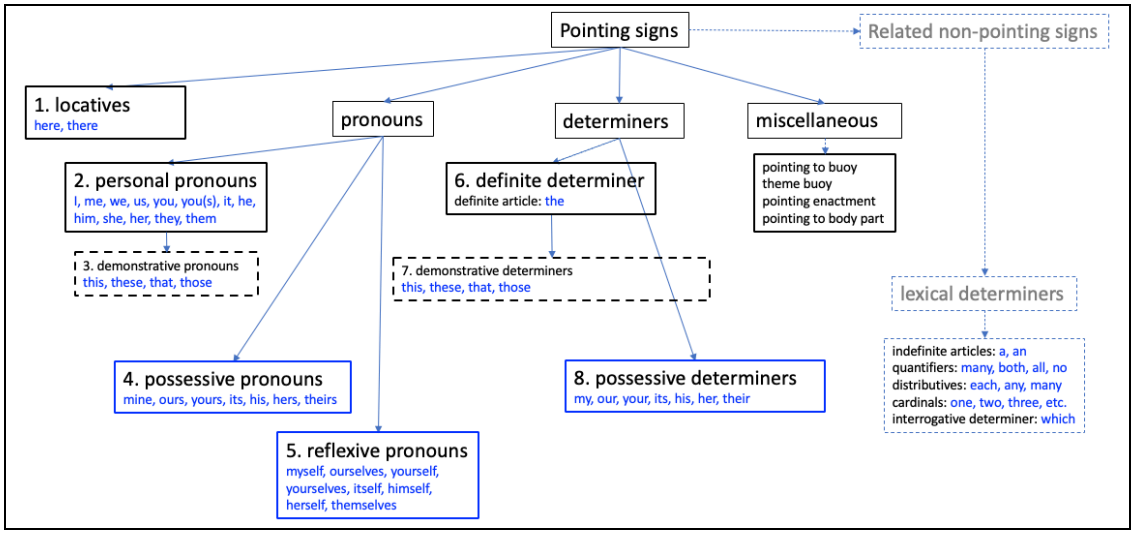


Figure 3 Pointing signs mapped onto English categories & translations (blue font)

Pointing signs, as pointing actions in space, have a fundamental underlying locative sense and the primary function of one type of point is precisely this ('locatives'). They locate the scene of action of verbs or assign locations to entities.

In most instances of pointing, however, signers mean real or imagined referents located somewhere ('pronouns'), about which something is predicated in a clause. Three types of pronoun-like pointing signs (personal, reflexive, and possessive pronouns) are distinguished from each other by handshape and hand orientation and, of course, the other signs in the utterance unit they occur with. The referents of these pronoun-like pointing signs are core arguments of a clause. A fourth type of pronoun (demonstrative pronouns) are distinguished from regular pronouns by either English mouthing, eye gaze towards the target (real object or assigned location), and added movement stress towards the target, or all three. Without at least one these features being present, the point would be treated as a personal pronoun.

Other pointing signs signal that a named entity is known or familiar in some way or a particular one of its kind ('determiners'). All determiners occur before, after, or simultaneously with, a noun sign. Two types of determiner-like pointing signs (definite determiners and possessive determiners) are distinguished from each other by handshape and hand orientation, while the third type (demonstrative determiners) is distinguished from the definite determiner by either the use of English mouthing, plural sweep or repetition, increase focus on the target of the point, or all three. Without at least one these features being present, the determiner point would be treated as a definite determiner.

Another a group of pointing signs have various separate and disparate functions in Auslan ('miscellaneous') which, interestingly, also appear to be found in co-speech gesture.

Finally, Auslan has a set of determiners which are not instances of pointing signs at all ('lexical determiners'). See Figure 4 for a summary.

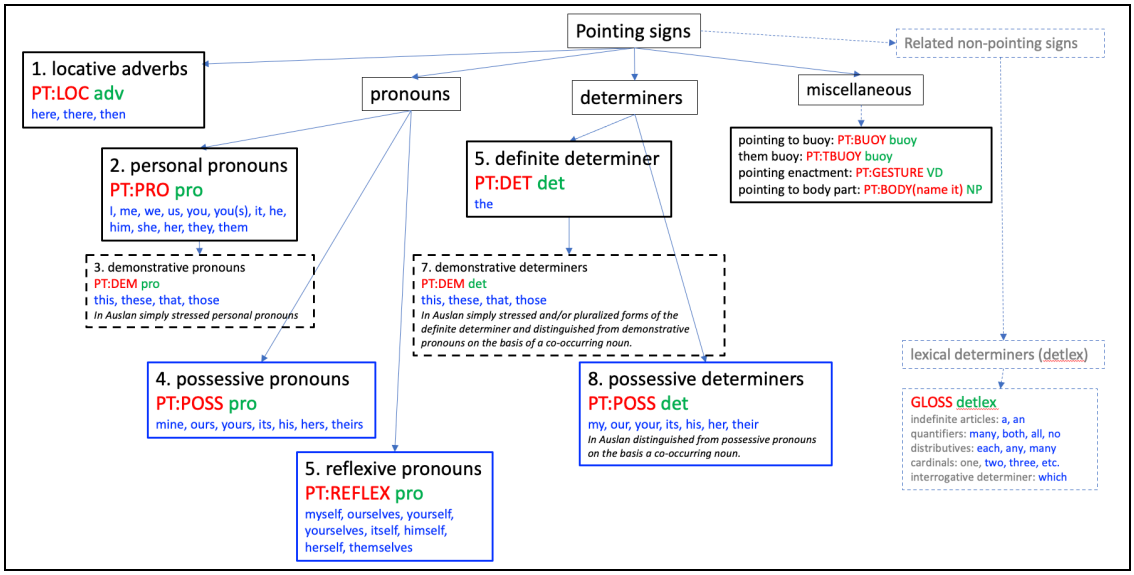


Figure 4 Type-like glosses (red font) with grammatical class tag (green font)

One can see from Figure 4 that the grammatical class tag distinguishes demonstratives that are pronouns from those that are determiners, and possessives which are pronouns from those that are determiners. Note also that personal pronouns are glossed PRO with a grammatical class tag of 'pro', and the definite determiner is glossed DET with grammatical class tag of 'det' which means that there is redundancy in the grammatical class labels for both.

Overall, the general form of a pointing sign gloss is PT_FUNCTION(PERSON)(NUMBER), i.e., the gloss of a pointing sign begins with PT, an abbreviation for 'point'[17] followed, after an underscore, by the function most easily associated with it, and then by the grammatical location/person, and by the grammatical number. However, though pointing signs are often able to be completely specified in this way on the first glossing parse of a text, many cannot without closer examination of the clauses they occur in and these can only be confidently delineated after the signs in the text have been segmented and identified (glossed), and the text translated into English. Consequently, many pointing signs will at first only be glossed as PT. The schematically possible location/person and number values are listed in Table 6 with actual or descriptive equivalents in English.

With respect to location/person labels, there are five possible values—1, 2, 3, 3prox and 3distal—which map onto locations in the signing space. 1 means pointing to the location of the signer, i.e., first person pronoun; 2 means pointing to the addressee, i.e., second person pronoun; 3 means pointing to a location or a referent that is neither the signer nor the addressee but which is relatively nearby, relevant, or visible, i.e., third person pronoun; 3prox is like a 3 but points to somewhere close by, usually between signer and addressee, e.g., 'here'; in contrast, 3distal points to an invisible location or participant which is outside the local context because it is far away or imaginary, i.e., 'over there' or 'yonder'. These

[17] Pointing signs are also called index signs by many SL researchers who thus prefer to use IX in the glossing of various types of pointing signs. Any abbreviation is appropriate if it is applied systematically within a corpus.

number specifiers can be attached to demonstrative determiners also because they can have a meaningful spatial expression. However, definite determiner points have a seemingly targetless point, sometimes directed randomly slightly upwards and are thus left unspecified for person. They are glossed simply as PT_DET.

With respect to number, pointing signs can be specified as PL for plural. Though plural forms often display sweeping or arcing movement, repetition (with or without re-location), handshape modification or number incorporation, many do not. The label PL simply refers to the number of the referents in context. Preliminary corpus data suggests that the plurality of a pointing sign is often determined from context alone, and not obligatorily encoded in sign morphology. The PL specifier is added when the target is clearly plural. Analysis of signs specified as plural will provide evidence on how often sign modification is associated with plurality. Finally, number specification is not added to the definite determiner—any modification for number, like multiple repetitions or a sweeping movement, turns a definite determiner into a demonstrative determiner according to these guidelines.

Like the initial use of a bare PT gloss for a pointing sign, it may take several annotation passes of a text before the person and number specifications associated with each token can be confidently added.

3.2.6.1.1 Indefinite pointing signs

Even after examining the co-text more closely, the grammatical function of some pointing signs, usually 'third person' pointing signs, may resist categorization with just one label, because the usage event conflates or does not distinguish the three main functions. The pointing action may be said to determine, locate, and pronominalized all at the same time, and it appears impossible to prioritize one of these three meanings. Indefiniteness is not unusual in Auslan, e.g., it is not uncommon to have two plausible parses of a clause in which one or more of the core constituent signs can be understood as either a noun or as a verb. Both interpretations are acceptable and make sense because the clause is structurally indefinite. (See §4.1.2.2 for more information on grammatical classes.) To accommodate indefiniteness or multifunctionality in pointing signs, one can use all three specifiers in the gloss, thus: PT_LOC/DET/PRO(PERSON)(NUMBER). For example,

(21)

In this example, the point is made after another sign that names a referent. It is like a determiner, yet it also contains locative information, as well as having some pronominal sense. The noun+point sequence is not a separate predication because prosody shows it is clearly a constituent of the rest of the clause. The following translations in English could all be

felicitous: “the girl cuts…”’; “the girl there cuts…”; “the girl there, she cuts…”, as the translation tiers try to capture.

Such cases are relatively rare. To date, there are only 16 tokens of these in over 14,500 pointing signs in the corpus because annotators are able to select the apparent primary function of the point in most pointing signs. It should nonetheless be understood as a general principle of the grammar of Auslan that pointing signs, except perhaps the definite determiner, are rarely devoid of any locative information whatsoever. (Definite determiners appear to be a small proportion of all pointing signs in the corpus, at c. 200 tokens.)

Note 7: Flying points

Flying points are relaxed hands with the index finger extended slightly and the other fingers in various degrees of closure. A flying point is ***not*** a true pointing sign at all because it appears to make no obvious contribution to the unfolding discourse. Flying points often occur on the weak hand, or on the strong hand when there is a switch of hand dominance, while the other hand continues to sign. Like non-meaningful perseveration of handshapes or sign fragments, flying points are ignored and have not been annotated. Of course, if they become the topic of a dedicated study, they would be given their own dedicated annotation.

Table 6 Schematically possible PT glosses[18]

Locative adverb	Personal pronoun	Demonstrative pronoun	Possessive pronoun	Reflexive pronoun	Definite determiner	Demonstrative determiner	Possessive determiner
1	2	3*	4**	5	6	7*	8**
PT:LOC1	PT:PRO1	PT:DEM1	PT:POSS1	PT:REFLEX1	PT:DET3	PT:DEM1	PT:POSS1
here-on-me	I, me	this-on-me	mine	myself	the	this-on-me	my
PT:LOC1PL	PT:PRO1PL	PT:DEM1PL	PT:POSS1PL	PT:REFLEX1PL		PT:DEM1PL	PT:POSS1PL
places-here-on-me	we, us	these-on-me	ours	ourselves		these-on-me	our
PT:LOC2	PT:PRO2	PT:DEM2	PT:POSS2	PT:REFLEX2		PT:DEM2	PT:POSS2
there-near-you	you	that-near-you	yours	yourself		that-near-you	your
PT:LOC2PL	PT:PRO2PL	PT:DEM2PL	PT:POSS2PL	PT:REFLEX2PL		PT:DEM2PL	PT:POSS2PL
places-there-near-you	yous, you-all	those-near-you	yours	yourselves		those-near-you	your
PT:LOC3	PT:PRO3	PT:DEM3	PT:POSS3	PT:REFLEX3		PT:DEM3	PT:POSS3
there	he/she/it	that	his/hers/its	him/her/itself		that	his/her/its
PT:LOC3PL	PT:PRO3PL	PT:DEM3PL	PT:POSS3PL	PT:REFLEX3PL		PT:DEM3PL	PT:POSS3PL
places-there	they, them	those	theirs	themselves		those	their
PT:LOC3prox	PT:PRO3prox	PT:DEM3prox	PT:POSS3prox	PT:REFLEX3prox		PT:DEM3prox	PT:POSS3prox
here	it-here	this	its-here	him/her/it-here-self		this	its-here
PT:LOC3proxPL	PT:PRO3proxPL	PT:DEM3proxPL	PT:POSS3proxPL	PT:REFLEX3proxPL		PT:DEM3proxPL	PT:POSS3proxPL
places-here	they/them-here	these	theirs-here	them-here-selves		these	theirs-here
PT:LOC3distal	PT:PRO3distal	PT:DEM3distal	PT:POSS3distal	PT:REFLEX3distal		PT:DEM3distal	PT:POSS3distal
yonder, then	yon	that-yon	his/hers/its-yon	him/her/it-yon-self		that-yon	his/her/its-yon
PT:LOC3distalPL	PT:PRO3distalPL	PT:DEM3distalPL	PT:POSS3distalPL	PT:REFLEX3distalPL		PT:DEM3distalPL	PT:POSS3distalPL
places-yonder, then	yon	those-yon	theirs-yon	them-yon-selves		those-yon	their-yon

[18] (i) English translations or descriptive glosses in blue font & glosses attested in Auslan Corpus by mid-2024 in green cells. (ii) Points in columns 3 and 7 (*) and in 4 and 8 (**) are distinguishable from each other in the corpus because the co-occurring grammatical class tag is different for each (see Figure 4).

Table 7 Miscellaneous points

Type gloss	Grammatical class tag	Description of function
Points that are buoys		
TBUOY	buoy	A sign that points 'abstractly' marking a theme (it often seems to point upwards). It is held while signing activity continues on the other hand. These are called 'theme buoys' by Liddell (2003), and it is a tentative category, awaiting corpus confirmation of its distinctiveness. They would be difficult to distinguish from a depicting sign handshape representing an (abstract) entity (the upright or diagonal one handshape).
Points to buoys		Arguably sub-types of PT_LOC or PT_PRO.
PT_LBUOY	buoy	A sign that points to a list buoy handshape.
PT_FBUOY	buoy	A sign that points to a fragment buoy.
PT_TBUOY	buoy	A sign that points to a theme buoy.
Pointing to body parts		Arguably a sub-type of PT_LOC or PT_PRO.
PT_BODY(BODYPART)	noun	A sign that points to a body part and is not considered to be a lexical sign, e.g., pointing to one's shoulder simply means "that which I am pointing at, which happens to be a body part" and is glossed PT_BODY(SHOULDER). (An example of a lexical point in Auslan is HEAR (one points to one's ear). EAR is signed by holding one's earlobe between the thumb and index finger.)
Pointing enactments		
PT_GESTURE	depicting verb	A sign that points as part of an involuntary/unconscious gesture (e.g., showing surprise at something) or as part of an enactment of someone doing this.

3.2.6.2 Depicting signs

Depicting signs (also known as classifier signs[19]) have been categorized in the SL linguistics literature into several major types according to their form and use: (i) movement depictions, (ii) location depictions, (iii) size and shape depictions, and (iv) handling depictions. In this section we cover the first three because we consider handling depictions as non-conventional signs or enactments (see §3.2.7.).

The handshape in types (i) and (ii) represents something that moves or is located in the signing space. The thing represented has already been identified, is about to be identified or can be identified from the context and/or by the handshape. The handshape is thus like a proform but the overall depiction is verb-like because it describes the location or displacement of the referent the handshape represents.

In type (iii), size and shape depictions, the handshape is imagined to be placed on or touching the surface of something, with the palm-side being the contacting surface of the hand. If the hand is moved, it is usually in the plane of the metacarpus towards the radial or ulnar sides of the hand and this is interpreted as the hands moving over the surfaces or edges of the object (to show the extent of the surface), not an object moving, e.g., something circular is shown to be also cylindrical. In some size and shape depictions the interacting part of the hand is the fingertip of the index finger (and sometimes other fingertips) which traces the outline of something. Size and shape depictions are like modifiers or predicate adjectives: they describe an object by showing a salient physical feature of it and often occur immediately before or after the object is named with a sign. They are indexing insofar as they are placed in or move between salient points in the signing space, and they are conventionally symbolic insofar as the handshapes display language-specific conventionalization, even if they are iconic and often shared with other SLs.

An additional type of depicting sign is distinguished in Auslan for our annotation purposes. They occur in two handed constructions during which one hand acts as a reference point for the other active hand. They tend to represent elements which are circumstantial or backgrounding to the event, process or state. We call them ‘ground depictions’. They may represent the literal physical ground (surface, floor, earth), the background in the perceptual sense (i.e., the ground in a figure/ground relationship) in a situation, or simply a contextual reference point (physical or temporal point of origin or destination), or even something general or abstract (event, topic). Ground depictions usually use a point, flat, or relaxed handshape.

Overall, the form of depicting signs greatly depends on the signer’s conception of the thing, event or state depicted in each usage event.

[19] In many descriptions of SLs these types of signs are often referred to as ‘classifier’ signs which have themselves been categorized in different ways, with no settled typology. The approach adopted here is similar to Liddell (2003) and Johnston and Schembri (2007a) but with some important differences.

The gloss for a depicting sign contains both type-like information and token-like information. It begins with DS to distinguish it from conventional lexical signs which have a unique ID-gloss, and from pointing signs which being with PT (see §3.2.6.1) and enactments and gestures which begin with G or G(CA) (see §3.2.7.2.1). The minimal temporary gloss of a depicting sign is DS or DS followed by a specification of the HANDSHAPE in parentheses, e.g., DS(FLAT). The handshape used in the depiction is stated in the gloss because in virtually all these signs the handshape is iconic or mimetic in some way and contributes to the meaning of the depiction (see Table 32 in the appendix for a full list of Auslan handshapes and ways to refer to them). The placeholder can be used until more detailed annotations are made to the text enabling the type and meaning of the depiction to be better understood and the gloss expanded in ways we now describe.[20]

Codes for the type of depicting sign identify the *main* meaning of the sign as the movement of something, the location of something, the size and shape characteristics of something, or the ground in a scene of action. The prefixes are DSM, DSL, DSS, DSG, respectively (see Table 8).

Table 8 Depicting sign annotation gloss prefixes

Prefix	Depiction	Core meaning
DSM	Movement	Depicts the movement of an referent which the handshape represents.
DSL	Location	Depicts the location of an referent which the handshape represents.
	Located-at	A sub-type of *Location* that uses a short downwards movement to explicitly mark the association of the referent (which the handshape represents) with a location which is immediately or subsequently activated in the discourse.
DSS	Size and shape	Depicts an image of something, suggesting what it looks like in terms of size and shape by simulating placing hands on it or moving them over its surfaces.
	Trace size and shape	A sub-type of *Size and shape* that uses one or more fingertips as the imagined point of contact to trace an outline of the object.
DSG	Ground	Depicts something which the handshape represent and which acts as reference point or anchor (often ill-defined or abstract) for the active hand while it signs something. The ground often only expresses circumstantial information of the event or clause.

Example (22) is a simple gloss for a depicting sign. The sign uses a  ('C' or 'letter-c') handshape which is associated with a circular shape and is used in this instance show an object moving (or being moved):

(22) annotation gloss DSM(C)
lit trans: 'something circular moves or is moved'
free trans: 'the CD slid into the CD-player'

Depicting sign glosses are not intended to convey all the meaning of a depiction. This is captured on the free translation tier which captures the meaning, given the context. The depicting sign annotation gloss facilitates corpus-based research on them, e.g., examining the

[20] Annotators often immediately append token like information about the meaning of the depiction, e.g., DS(FLAT)_the-tray-at-the-back-of-a-utility-vehicle, especially if no other annotation, such as a translation, has yet been added to the file. This type of practice is too context specific for our purposes and they are later 'regularized' to fit the annotation schema described in this section.

strength of the association of particular handshapes (with or without specific orientations) with classes of referents and thus establishing the degree of conventionalization of the handshapes; or determining how each DS type interacts with conventional lexical signs.

Although one can compare DS glosses with text in the aligned translations to do this research, this requires complex overlapping searches with words or phrases on the translation tier to extract patterns. Additional expansion of the depicting sign gloss, by optionally adding an orientation descriptor and a general referent type or shape descriptor, can thus make the data more tractable. We represent the expanded annotation glosses for DS signs in the following schema:

(23) **DSM|DSL|DSS|DSG(HANDSHAPE-**ORIENTATION**)(**_REFERENT-TYPE|SHAPE-TYPE)

This means: "for depicting signs begin the gloss with DSM, DSL, DSS, or DSG depending on the main function of the depiction; follow this in parentheses by a specification of the handshape used in the depiction and, optionally and after a hyphen, specify the orientation; then after an underscore optionally state the general type of referent or the shape it represents". For example,

(24) annotation gloss DSM(C-LATERAL)_CIRCULAR
lit trans: 'something circular moves or is moved'
free trans: 'the CD slid into the CD-player'

It appears that the orientation of some referent handshapes associates the handshape with a particular type of referent even more strongly, e.g., a flat hand held laterally is much more likely to be associated with a vehicle than in any other orientation. This information helps evaluate this. A limited set of orientation values are used for this purpose:

Table 9 Orientation descriptors

ORIENTATION	explanation
DOWN	hand horizontal and palm facing **down** (pronated)
UP	hand horizontal and palm facing **up** (supinated)
LATERAL	hand horizontal and palm facing sideways (**laterally**)
VERT	hand **vertical** with the longitudinal axis of the metacarpus pointing up
INVERT	hand **inverted** with the longitudinal axis of the metacarpus pointing down

REFERENT-TYPE descriptors identify the class of entity that is located or moved in DSM and DSL depictions, the type of ground in DSG depictions; and SHAPE-TYPE descriptors identify the type of shape in DSS depictions. Limited set of values are used for in both cases (see in Table 10).

Table 10 REFERENT-type and SHAPE-type descriptors

REFERENT-TYPES			SHAPE-TYPES
DSM	**DSL**	**DSG**	**DSS**
ANIMAL	ANIMA(-AT)**	DESTINATION	CIRCULAR
ANIMAL-LIMB	ANIMAL-LIMB(-AT)	GROUND	CUBICAL
ANIMALS	ANIMALS(-AT)	ORIGIN	CYLINDRICAL
ENTITIES	ENTITIES(-AT)	REFERENCE-POINT	HEMISPHERICAL
ENTITY	ENTITY(-AT)	TIME	LONG
HUMAN	HUMAN(-AT)	TOPIC (TBUOY)	LONG-THINGS
HUMAN-LIMB	SEMI-CIRULAR(-AT)		RECTANGULAR
HUMANS	HUMANS(-AT)		SEMI-CIRCULAR
VEHICLE	VEHICLE(-AT)		SPHERICAL
OBJECT(-SHAPE-TYPE)*	OBJECT((-SHAPE-TYPE)(-AT))		SURFACE
OBJECTS(-SHAPE-TYPE) *	OBJECTS((-SHAPE-TYPE)(-AT))		SURFACE-FLAT
			SURFACE-UNEVEN
			THICK
			THIN
			DSS-TRACE
			TRACE(-SHAPE-TYPE)

*DSM and DSL REFERENT-TYPES 'OBJECT' and 'OBJECTS' can optionally be further specified with –SHAPE-TYPE. The DSM and DSL prefixes and the PoS tag in the corpus clearly identify them all as a verb-like constructions rather than modifiers or predicate adjectives.
** DSL REFERENT-TYPES that have the downward placing movement are appended with –AT, e.g., HUMAN-AT.

For example:

(25) DSM(1-VERT)_HUMAN
lit trans: 'someone moves'
free trans: 'the boy went to the village'

(26) DSL(2bent-DOWN)_ANIMAL-AT
lit trans: 'an animal is here'
free trans: 'the frog is in the jar'

(27) RIGHT HAND DSM(2-INVERT>VERT)_HUMAN
LEFT HAND DSG(POINT-DOWN)_ORIGIN
lit trans: 'someone falls backwards from somewhere'
free trans: 'the boy fell backwards from the branch'

(28) DSS(C-LATERAL)_CIRCULAR
lit trans: 'circular about so big'
free trans: 'the pizza, it was large', 'it was a large pizza'

Handshapes can have iconic and/or conventional semantic associations as shown in Table 11 for REFERENT-TYPES and Table 12 for SHAPE-TYPES.[21] As can be seen, the same handshape can be used in different ways in different types of depictions.

[21] The image created by the use of these handshapes in a depiction depends on whether one or two hands are used, whether both have the same handshape or not, and how the hand or hands are oriented and moved. A full list of the most common handshapes in Auslan with their names and codes can be found in Table 32.

Table 11 Handshapes associated with various REFERENT-TYPES

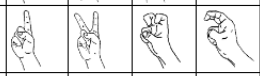
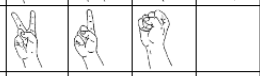
REFERENT-type	Most frequently associated handshapes
ANIMAL	
ANIMAL-LIMB	
ANIMALS	
ENTITIES	
ENTITY	
HUMAN	
HUMAN-LIMB	
HUMANS	
VEHICLE	
OBJECT	Any shape-type handshapes when moved in such a way as to mean the object moves or is moved.

Table 12 Handshapes associated with SHAPE-types

SHAPE-type	Commonly associated handshapes
CIRCULAR	
CYLINDRICAL	
HEMISPHERICAL	
SPHERICAL	
LONG	
LONG-THINGS	
RECTANGULAR	
SEMI-CIRCULAR	
SURFACE-NARROW	
SURFACE-FLAT	
SURFACE-UNEVEN	
THICK	
THIN	
TRACING	

Finally, many depicting signs involve the use of both hands. One hand may be held still while the other hand signs an action performed with reference to it by another entity. These are complex simultaneous constructions in which each hand usually carries its own meaning, thus requiring that each hand be glossed according to its role in the construction (one hand is usually glossed as a DSG). In other, often symmetrical, two-handed depictions only one

single object or action is depicted. In these cases, the gloss of both strong and weak hands will be identical.

Table 13 Summary of depicting sign annotation schema

Generic schema = **DSM|DSL|DSS|DSG(HANDSHAPE-**ORIENTATION)(_REFERENT-TYPE|SHAPE-TYPE)			
Type	**Subtype**	**Explanation**	**Gloss schema**
Placeholder		Assumed to be a symbolic indexical (depicting) sign, but has not yet been further categorized.	**DS(HANDSHAPE)**
Proform-like			
	Movement	Depicts the movement of an referent which the handshape represents.	**DSM(HANDSHAPE-**ORIENTATION)(_REFERENT-TYPE)
	Location	Depicts the location of an referent which the handshape represents.	**DSL(HANDSHAPE-**ORIENTATION)(_REFERENT-TYPE)
	Located at	A sub-type of *Location* that uses a short downwards movement to explicitly mark the association of the referent which the handshape represents with a location (to be immediately or subsequently activated in the discourse).	
	Ground	Depicts something which the handshape represent and which acts as reference point or anchor (often ill-defined or abstract) for the active hand while it signs something. The ground often only expresses circumstantial information of the event or clause.	**DSG(HANDSHAPE-**ORIENTATION)(_REFERENT-TYPE)
Tracing-like			
	Size and shape	Depicts an image of something, suggesting what it looks like in terms of size and shape by simulating placing hands on it or moving them over its surfaces.	**DSS(HANDSHAPE-**ORIENTATION)(_SHAPE-TYPE)
	Trace shape	A sub-type of *Size and shape* that uses one or more fingertips as the imagined point of contact to trace an outline of a shape or an object.	**DSS(HANDSHAPE)_TRACE(shape|object)**

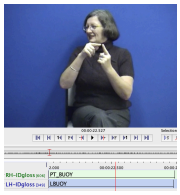
3.2.6.3 Buoys

A buoy is a handshape that is held throughout a stretch of discourse, usually on one's non-dominant hand, and is used as a physical reference point for a referent or referents. There are several types of buoys: list buoys, fragment buoys, and theme buoys (Liddell, 2003). The handshape can be held in space throughout the articulation of each item, or appear and re-appear if two-handed signing demands it be removed in order to produce certain signs. All gloss annotations of buoys contain the word BUOY and an initial letter that specifies the type of buoy, as exemplified below.

3.2.6.3.1 List buoys

When producing a list buoy a certain number of fingers are held stretched out. Each finger refers to entities or ideas that are all related, often sequentially. The annotation gloss for a list buoy is simply LBUOY, as in:

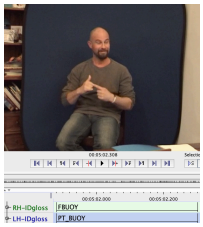
(29)



3.2.6.3.2 Fragment buoys

In a fragment buoy, the signer holds the final handshape of a previous sign (cf. perseveration and shadowing) as a buoy, i.e., it has significance and is referred to, e.g. by pointing or by other signs interacting with it. The annotation gloss is FBUOY, as in the following example where the signer is pointing to a fragment buoy of the sign AEROPLANE:

(30)



3.2.6.3.3 Theme buoys

In theme buoys, the signer uses an extended finger to mark a “theme” or subject, or even moment in time (Vogt-Svendsen & Bergman, 2007). These are annotated as TBUOY.

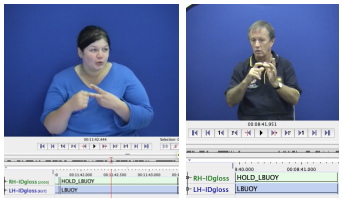
Note 8: Pointer buoys?

> Sometimes, signers point to a location in space that represents that entity or idea and then continue to point to that location while signing something related to that referent. Liddel (2003) calls these “pointer buoys”. However, in Auslan these are hard to distinguish from TBUOYS (and are thus glossed as such) or can equally be seen as instances of any one of other point types listed in Table 6 (PRO, LOC, DET) which are held and relevant to the discourse as it unfolds, i.e., they are essentially FBUOYS.

3.2.6.3.4 Pointing to or holding a buoy

In list buoys primarily, but also sometimes with theme buoys or fragments, the signer often holds or points to the buoy, usually with their dominant hand. In a list buoy, a specific finger, corresponding the items sequence order in the list, is usually pointed at or held. Pointing to a buoy is annotated as PT_BUOY (see Table 7 Miscellaneous points), and holding a buoy is annotated with HOLD-BUOY, as in:

(31)



3.2.7 Non-conventional signs (enactments and gestures)

When communicating in a SL, the visible bodily actions signers produce are not simply conventionalized signs one after the other, as if all these movements and articulations were, by definition, conventional language-specific lexical signs. Of course, many are; but, as we have just seen, some are symbolic indexical signs.

Others are *non-conventional* signs which are enactments or gestures. Admittedly, in the SL and multi-modal literature *gesture* has been notoriously difficult to define. Here, we mean by 'gesture' any intentional communicative bodily acts (both manual and non-manual) which have no language-specific conventionalization of meaning and form, and which rely on context to be construed as signs in the first place, let alone to be correctly interpreted (Kendon, 2004). For example, in response to an interlocutor's comment that 'You really should stop smoking', only context tells us if the visible bodily action in Figure 5 is a dismissive gesture ('I don't care much for your advice,' or 'Oh, it's nothing to worry about') rather an attempt to disperse some cigarette smoke with no signification whatsoever.

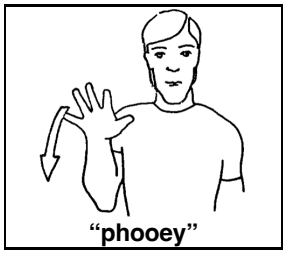


Figure 5 A dismissive gesture

In many other cases, it is usually obvious that some bodily acts are not intended to be taken for signs at all, e.g., picking one's nose.

Gestures can fulfil a range of functions in SLs and SpLs: they may act as or substitute for a verb or a noun, they may augment or modify the meaning of nouns and verbs, they may modulate and express the mood or attitude of the speaker, and they may regulate the discourse and interaction.

It should be noted that some highly conventionalized co-speech gestures that can be found in SpL communities are not actually gestures in this sense, they are signs or, more precisely, emblems (Kendon, 2004). They are usually shared with the embedded SL-using community for whom they are just like other conventional lexical signs (Johnston, 2013). Indeed, some undergo further language-specific lexicalization in the SL, and are part of the conventional lexicon. Other culturally shared gestures may be 'pre-emblematic' within the

SpL community, yet emblematic (i.e., lexicalized) within the SL community. They are similarly listed in the lexicon and are not annotated as gestures in the Auslan Corpus.

It is an empirical question whether other types of co-speech gesture, such as gesticulations (including beats), also occur in SLs, and, if so, how they are manifest given the primary modality of each language type.

A relatively small set of annotation conventions are sufficient to ensure that similar types of non-conventional signs are glossed in similar ways so they can be easily located and aggregated for analysis and comparison. There is no reason for annotators to be reluctant to categorize as non-conventional signs articulations that do not appear to fit easily or readily into the category of conventionalized lexical or symbolic indexical signs. Corpus-based analysis will play an important part in determining how these compare both with other sign types and to SpL gestures or, indeed, if they have been mis-categorized on earlier annotation passes.

3.2.7.1 Enactments

In SL texts many non-conventional signs are enactments which ***show*** the interlocutor what action was performed using the hands and arms, and sometimes also the torso, head, eyes, or mouth, without ***telling*** them using a conventional lexical sign or multi-sign expression.

Some of the handshapes used in enactment are what most SL linguists describe as handling classifiers (see §3.2.6.2). In contrast, we regard them as simple enactments because it appears that the affordances of the human hand, rather than convention, determine the handshape(s) best suited to performing any given task. Another feature of handling enactments is that many have more than two stages (or syllables) in their articulation, which is unlike conventional lexical signs and most symbolic indexical signs which tend to have only one or two syllables, at most.

Some conventional lexical signs appear to have evolved from enactments, and others appear to consist of another related lexical sign which incorporates a handshape associated with handling. Thus, many SL linguists analyse these to be lexical signs that incorporate a handling 'classifier'. We, on the other hand, treat them as enactments unless they do appear to be lexicalized in language-specific ways—in which case they are simply conventional lexical signs that are iconic, just like many other signs.

3.2.7.1.1 Manual enactment annotation

Manual acts that appear not to be intentionally communicative, like scratching one's neck, are not annotated.

In those manual acts that are intentionally communicative enactments, Auslan signers are usually assuming the role of themselves (at another time) or of another person (at another time or in an imaginary scenario). These enactments are part of what is called CONSTRUCTED ACTION in SLs. They are annotated on the glossing tiers with the prefix G(CA)_ which means a gesture (G) which is part of a period of constructed action (CA), i.e., an enactment. This is followed by a brief description after the underscore of who is doing what, thus:

(32) G(CA)_boy-waves-hands-around-in-panic

The annotation of constructed action is described in detail in §3.3.3.

3.2.7.1.2 Non-manual enactment annotation

Non-manual actions that appear not to be intentionally communicative, like licking or biting one's lips or turning one's head as part of scanning the immediate context of utterance, are not annotated.

However, some non-manual enactments, like making a biting action while signing BITE, are communicative. They are annotated on tiers dedicated to non-manual elements (see §3.3.1). If the non-manual enactment is understood to be part of a period of constructed action, as it often is, it will be annotated in a way that shows this (see §3.3.3.).

3.2.7.2 Gestures

The remaining visible bodily actions, which are neither conventional lexical signs, symbolic indexical signs, or enactments, are what we refer to as 'gestures' here. Many are also used by hearing non-signers in the ambient community in their co-speech gestures. They may modulate and express the mood or attitude of the speaker/signer, or they may regulate the discourse and interaction.

3.2.7.2.1 Manual gesture annotation

The minimal annotation for a gesture unit begins with a type code 'G', for 'gesture', followed after an underscore with a description of its meaning, thus:

(33) G_hand-moves-to-and-fro-in-circle

Because gestures are to a large part non-conventional signs, in the annotation one needs to refer to form and meaning even if it only approximates, rather than specifies, both. By annotating the types of meanings encoded in gestures, it will be possible to see (a) the types of meanings commonly expressed through gesture and (b) the degree of conventionalization a gesture-meaning pairing may be undergoing by comparing annotations with similar meanings.

However, gestures are less idiosyncratic than enactments and there are recurring patterns of type-like forms (with similar general handshape and orientation) and type-like meanings (with similar overall meanings), even if there is a lot of variability between each. The most frequent of type-like gestures have the handshape and the orientation, the movement, or the location of the hand added to the annotation in parentheses after the G prefix. And, after an underscore, a one or two word meaning tag is added, thus:

(34) G(HANDSHAPE-ORIENTATION|MOVEMENT|LOCATION)_MEANING

Some type-like gestures are culturally shared. For example, the 'phooey' gesture in Figure 5 is found in a common dismissive gesture shared with the ambient SpL community and, indeed with many other cultures. There is a recurrent pattern in form and meaning but it is

regarded as a borderline conventional sign in Auslan as it seems to have no discernible Auslan-specific conventionalization, so it remains annotated as G(5-DOWN)_PHOOEY.

Some type-like manual gestures appear to be unique to Auslan, or at least SLs. For example, G(5-WIGGLE)_UMM is a type-like gesture (wiggling the fingers) signers make when they are thinking about what to say next while signalling that they intend to maintain their turn in the conversation, i.e., they do not want to cede to their interlocutor while they think. It is very much like a spoken 'errr' or 'umm' which has the same effect.

Some of the descriptors used for these common type-like gestures are listed in Table 14. The list is not exhaustive or fixed. It is augmented as type-like gestures are identified in the corpus. Initial simple manual gesture descriptions, prefixed with a G, are expanded into regularized type-like glosses in much the same way as initial simple DS depicting sign glosses are grouped into types.[22]

Table 14 A glossing and categorization guide for recurring gesture 'types'

Gloss annotation	meaning
G(5-DOWN)_RIGHT-OK	relaxed spread hand(s), palm down
G(5-DOWN)_PHOOEY	relaxed spread hand(s), palm now, hand drops
G(5-WIGGLE)_UMM	relaxed spread hand(s), fingers wiggling
G(1-LIPS)_ERR	index finger held to the lips, palm facing signer
G(5-TOWARDS)_AHH	relaxed spread hands, palm towards each other, fingers up
G(5-AWAY)_HOLD-ON	relaxed spread hand, palm away from signer

Indeed, types are sometimes deleted from the list because usage evidence suggests some type-like gestures should be re-categorized as conventional lexical signs and glossed with an ID-gloss. For example the sign often glossed as 'well' (or equivalent in other languages) in SLs was initially glossed as the type-like gesture G(5-UP)_WELL in the Auslan Corpus, but is now given the ID-glosses WELL(PALMS-UP) or WELL(PALM-UP)-DUNNO. The first seems to have several identifiable functions which can be grammatically tagged: as a discourse marker ('so in that case, given what is now evident, I will now go on to say this...'); a generalized question sign ('What do you want me/anyone to do/', 'What do you/does anyone expect?', 'So...?, 'Who would do such a thing...?', 'Why would anyone do that...?', 'Where's that...?', 'How exactly did that happen...?'); an interjection ('I'm shocked or surprised', 'Oh, dear..') , and an interactive ('That's all I have to say', 'There's nothing more to say', 'I told you so'). It appears more integrated into Auslan than in co-speech gestures where it appears 'pre-emblematic'. Indeed it is the most frequent sign in the corpus at 3.5% of tokens, after PT_PRO1 at 3.6% and PT_PRO3 at 2.2%).[23] WELL(PALM-UP)-DUNNO is clearly an emblematic gesture (it also involves the shoulders) in the surrounding SpL, i.e., it is a conventional sign for speakers and signers, with the same form and meaning in both communities—it is used only in direct response to a direct question or an implied question, e.g., in response to something unusual or inexplicable being jointly witnessed.

[22] See footnote 20.

[23] It should be noted that do not even annotate the relaxed palms up position when it is simply a rest position between utterance units during a monologue, or at the end of a turn. They are not intended to be communicative, just like picking one's nose.

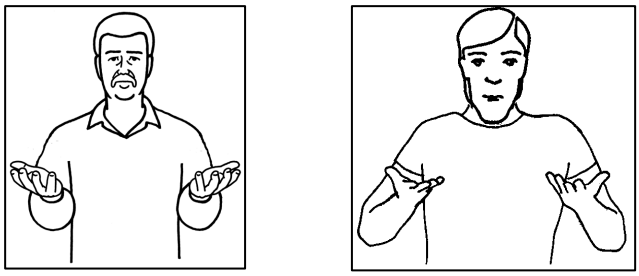


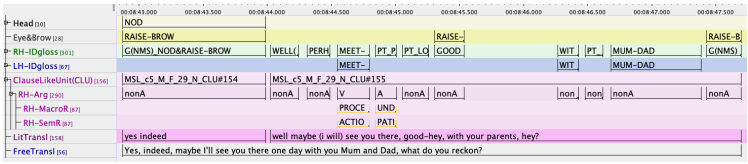
Figure 6 WELL(PALM-UP) & WELL(PALM-UP)-DUNNO

3.2.7.2.2 Non-manual gesture annotation

Non-manual gestures use the torso, head, eyes, or mouth. Some involve no new manual activity while they are being produced. These non-manual gestures are annotated as are other non-manuals on their own dedicated annotation tiers (see §3.3.1) whether they co-occur with manual signs or not.

However, in cases where nothing is being actively signed on the hands at the same time, a gloss placeholder is created for the non-manual gesture to avoid the false impression that no significant communicative activity is occurring during these periods. This false impression is likely to happen if one was to look at ID-glosses alone—as a kind of pseudo 'transcript'—divorced from the primary media, e.g. if looking at a file of exported annotations from the glossing tiers.[24]

(35)



In (35) the non-manual gestures without co-occuring signs involve nodding and brow-raise in the first clause and brow-raise at the end of the second clause. The tags for the non-manuals are repeated on the glossing tier and prefixed with G(NMS)_ for 'Gesture (Non Manual Sign)'. In the first clause, the signer is nodding in agreement and the brow-raise adds intensity ('indeed'). In the second clause, the signer has raised her eyebrows as a kind of joking emphatic tag, roughly equivalent to saying 'hey?' or 'what do you reckon?'

3.2.8 Fingerspelling

An instance of fingerspelling can simply be the representation of an English word using the manual alphabet, or it can represent various degrees of nativization of an English word into the vocabulary of Auslan proper.

[24] Of course, the corpus annotations are not intended to function as a transcripts (see §2.1.5) but exporting annotations into spreadsheets is very useful for various kinds of analysis.

3.2.8.1 The representation of English words

Fingerpelled English words are glossed with the prefix *FS* for 'fingerspelling' followed, after an underscore, by the target word, thus:

(36) FS_WORD

Reduced, incomplete or incorrect fingerspellings are very common in naturalistic signing and may be glossed with the actual fingerspelled letter sequence written in parentheses after the target. The schema of the gloss is FS_TARGET(ACTUAL), thus:

(37) FS_WORD(WOR) *not* FS_WOR

However, because incompleteness is very common and often unremarkable, unless there appears to be good reasons for recording reduced fingerspelling, e.g., because it is a possible interesting slip of the hand, as in (38), or a possible emerging nativized abbreviation, as in (39), incomplete fingerspellings can be simply glossed with the target alone.

(38) FS_SO(SI) *not* FS_SI
(39) FS_WORD(WRD) *not* FS_WRD

With respect to English word classes, it is often difficult to know with certainty if the omission of letters in the fingerspelling constitutes an 'error' because it is different to the target, given the context. Unless there is a clearly identifiable mouthing that conforms to a word in English belonging to a particular word class, fingerspellings that are acceptable spellings in English are transcribed as they appear. Apparently omitted final letters are problematic and are only be added if something in the production or context clearly indicates a target English word that has a different ending, e.g. if mouthing indicates awareness of the appropriate word form and spelling, or correct English requires another word form, as in:

(40) FS_CURLY(CURL) when mouthing and context suggests 'curly'
(41) FS_TOO(TO) when context suggests 'too', not 'to'

If the fingerspelling is for multiple words, *a new annotation* per word is begun even if it is one continuous act of fingerspelling.

(42) FS_MISS FS_KENTWORTH *not* FS_MISSKENTWORTH

Finally, some fingerspellings are abbreviations or initialisms in English. For example, 'dept.' is a standard English abbreviation for 'department', and 'WHO' is a standard English abbreviation/initialism for 'World Health Organization'. The glossing of these types of fingerspellings is slightly different in that the target is the abbreviation, so it is written first, followed by its common expanded form in parentheses. The schema for standard English abbreviations and initializations is FS_ABBREVIATION(WORD/S-ABBREVIATED/INITIALIZED), thus:

(43) FS_DEPT(DEPARTMENT) *not* FS_DEPARTMENT(DEPT)
(44) FS_WHO(WORLD-HEALTH-ORGANIZATION) *not* FS_WORLD-HEALTH-ORGANIZATION(WHO)

These conventions make it easy for fingerspellings in the corpus to be quantified and the types of words that are fingerspelled to be identified.

3.2.8.2 Nativized fingerspelling

A nativized fingerspelling is regarded as part of the Auslan lexicon rather than simply 'code switching' into English. There are two types of nativized fingerspellings in Auslan. The first consists of a relatively small group of very common, short English words which for many signers is the only way they express the concept expressed by the English word (other signers may use either the fingerspelling or another sign). These signs include linking and grammatical words such as *of, so, but,* and *if*, or everyday concepts such as *toy, bus, egg,* and *news.* These nativized fingerspelling are glossed just like all other fingerspellings, e.g., FS_NEWS, but are entered in Auslan Signbank as Auslan signs.

The second group consists of fingerspellings that are unique to Auslan and not shared by English speakers. Some are Auslan-only abbreviations, e.g., 'acc' means 'accident' only in Auslan. Some are initialisms in which a manual alphabet letter sign is repeated or moved in some way, e.g., 'kk' means 'kitchen' in Auslan, or 'b' with an added movement means 'billion'. Auslan-only abbreviations and lexicalized letter repetitions are glossed, thus:

(45) FS_ACC(ACCIDENT)

(46) FS_KK(KITCHEN)

These types of fingerspellings are much more integrated into the lexicon of the language. Information about the status of various fingerspelling routines, if they occur in the corpus, can be found in the linked online dictionary of Auslan (Auslan Signbank) where they are entered as lexical items.

Initialisms that involve the movement of a fingerspelled letter are glossed with the most appropriate English word as with all other Auslan signs. They are similar to initialized signs insofar as the handshape in the sign represents the initial letter of an English word closely associated with the sign, which is also the word used to gloss the sign. So 'billion (made as 'b' moved forward) is glossed simply as BILLION.

However, an initialism is distinct from an initialization in that the former is simply a letter formation moved in the signing space, whereas the latter is a handshape for a letter added to a sign or a gesture that already means something with a related meaning. The initialization produces a sign which is explicitly associated with a particular English word or sense, e.g., the initialized sign 'class' which is glossed as CLASS is morphologically the sign GROUP initialized with the letter 'c'.

Finally, many single or doubled letters can mean one of several different words that begin with that letter in English. The actual meaning is determined by the context alone or by the context with support of mouthing. They are not like initialisms or initializations in that they are not lexical items of the language, just ad hoc sign placeholders. The annotation of these signs also follows the standard fingerspelling for abbreviations, thus:

(47) FS_M(MONTH), FS_M(MINUTE), FS_M(MILE)

(48) FS_Y(YEAR), FS_Y(YARD)

(49) FS_GG(GOVERNMENT), FS_GG(GOVENOR-GENERAL), FS_GG(GARAGE)

These conventions make it easy for researchers to quantify the most frequent pairings in Auslan of single and doubled letters with particular English words and to determine if mouthing is required to support the pairing or if some pairings are more frequent and conventionalized than others.

3.2.9 Other glossing issues

3.2.9.1 Shadowing, anticipation and perseveration

For the purposes of primary gloss-based annotations, if the non-dominant hand is merely shadowing one or more features of what is considered to be a one-handed sign on the dominant hand (e.g. partially forming the handshape, or partially copying the movement) in an apparently involuntary way, or at least without any apparent communicative intent or discernible addition to meaning, then the activity on the non-dominant hand is ignored. Similarly, if the non-dominant hand appears to be anticipating or preparing for the next sign in a very minor way while another sign is still being produced on the dominant hand, this minor activity is not normally annotated as part of the articulation of the sign that is eventually produced. An annotation for the non-dominant hand may, however, begin 'early' in circumstances in which the non-dominant hand actually goes on to articulate a one-handed sign—alone or with a second sign simultaneously articulated on the dominant hand.

If weak activity on either hand appears to be a perseveration (the continuation of part of a just articulated sign as it slowly relaxes a neutral handshape or rest position), one does not normally prolong the annotation field for that sign to include all this fading activity, especially if another sign has clearly begun or is being articulated on the other hand, and that hand is articulated without any apparent reference to the perseverating hand. One only annotates information for the dominant hand in these cases, because the hand movements on the non-dominant hand are not meaningful.

If, however, the production of the next sign on the clearly active hand appears to be articulated with reference to the 'perseveration' in some way, then both hands are part of a simultaneous co-articulation of two signs and the hand that is held needs to be annotated. The period of continuation is annotated separately as a fragment buoy (or point buoy if it is a pointing sign), rather than simply extending the duration of the annotation field for that hand/sign. (We have found this approach makes it simpler to deal with exported annotations in spreadsheets, e.g., for quantifying or sorting the instances of this phenomenon.)

In brief, one always creates annotations for both hands in two-handed signs, or when each appears to be doing something deliberate and meaningful even if the sign is not two-handed.

It goes without saying that shadowing, anticipation and perseveration are not ignored when temporal phenomena of this kind are the very subject of investigation. Studies of this type would add this information to an existing annotation file (e.g. by duplicating the ID-gloss tiers, renaming them as, say, 'phonetic duration tiers' and adjusting the duration of annotation fields accordingly).

3.2.9.2 False starts and repairs

In spoken and SL discourse, especially in unplanned face-to-face communication, there can be many instances of false starts: a speaker or signer begins to articulate a word or sign but does not complete it for various reasons. It is usually followed immediately, or a few words or signs later, by a repair—i.e., with what was apparently intended in the first instance. When this is clearly the case the convention is to suffix the ID-gloss with Ø.

Identifying false starts in this way helps one quickly see why some referents are not or should not be included in argument structure tagging. It also enables one to later extract these types of errors from the corpus for further analysis as to their characteristics, and the timing and nature of the subsequent repair. False starts have no other sign based annotations attached to them (e.g., grammatical class, argument type).

3.2.9.3 Indecipherable signs

If it is evident that a participant in the text is making a sign of some kind but its form is unclear and it is impossible to determine what that sign is, let alone if it is a conventional lexical, symbolic indexical or non-conventional sign, an placeholder is created with the annotation 'indecipherable' (in lower case). This means its form and meaning cannot be clearly determined.

3.3 Detailed primary annotation

Free translation and segmentation of the text into individual sign tokens is the most basic annotation required to make the raw data tractable, but it is only the first step. It quickly becomes evident to anyone involved in annotation that deciding on the best gloss for individual signs is not made in isolation: one needs to pay attention to non-manual features (including prosody) as well as the actual utterance or communicative unit the sign occurs in (i.e., phrase or clause) to confidently identify the uses of many signs, especially pointing and depicting signs, and gestures (hence our provision for simple initial placeholders such as PT, DS and G). Detailed annotation seeks to identify non-manual behaviours, and delineate utterance units larger than the individual sign, that appear to be important in the annotators' decision making process.

3.3.1 Non-manual features or prosody

SLs are not simply produced on the hands. SL users recruit the space around the signer as well as non-manual behaviours such as body postures, head movements, eye gaze, facial expressions, mouthing of SpL words and mouth gestures. Non-manual activity may be localised at the level of the individual sign, but it is a phenomenon that often spreads over more than one sign and is thus equally associated with phrases, clauses or larger meaning units, including enactments. For this reason, all these tiers in the ELAN annotation file are independent tiers because the time alignments are not bound by any lexical or clausal unit.

Nonetheless, if any non-manual or prosodic feature aligns with a lexical, phrasal or clausal unit one selects that unit then double clicks *on the tier of the selected non-manual feature* within that selected time zone (which is highlighted in blue in ELAN) to enter the desired annotation. This creates an annotation field that aligns with the desired unit.

The alignment or co-occurrence of these prosodic annotations with sign or multi-sign units can be subsequently identified and quantified by searches and used as evidence of their role in the lexico-grammar. The major tiers used in the annotation of non-manuals are listed in Table 15.

Table 15 Non-manual behaviour tiers

Parent tier **↳ Child tier**	**Expanded name**	**Linguistic type**
Body	Body	BasicAnnotation
Face	Global facial expression	BasicAnnotation
Head	Head	BasicAnnotation
Gaze	Direction of eye-gaze	BasicAnnotation
Eye&Brow	Eyes and brow	BasicAnnotation
Mouthing	Mouthing (of words)	BasicAnnotation
↳ MouthingGCl	Grammatical class of word mouthed	GramCls
MouthGestF	Mouth gestures form	BasicAnnotation
↳ MouthGestM	Mouth gestures meaning	BasicTag

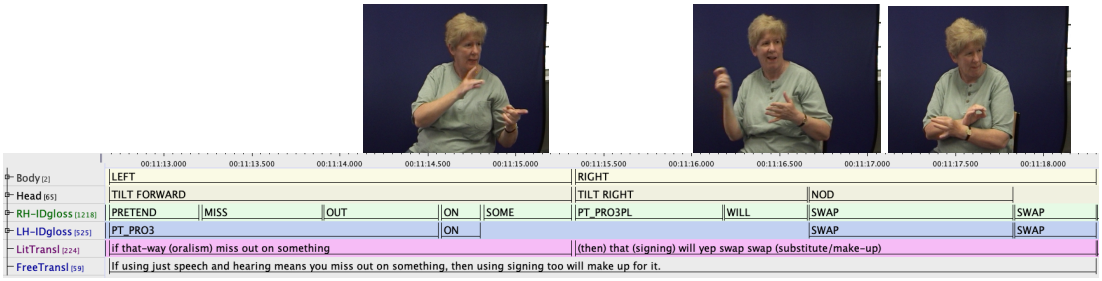
3.3.1.1 The body tier

There appear to be several functions of body movements in Auslan and the corpus annotations are intended to help describe and categorize these functions further (see §3.3.3 for more discussion). Changes are described with respect to the default neutral position which is upright, centred on the vertical axis, and facing the addressee. Body movement includes leaning or shifting the torso in a particular direction and/or swivelling or rotating the torso—often very subtly—so that it orients in a particular direction.

Briefly, these body movements are usually used to indicate that a part of a text (a single sign or a sequence of signs) is to be associated with a referent, a participant or a location which is indicated by the direction of a movement or the orientation of the torso (e.g. left, right, back, or front of the signing space). The referent(s) may be real or imagined, concrete or abstract, animate or inanimate.[25]

The body shift may itself establish a referent at a location, but usually it exploits an association which has already been established in the text by (i) locating a referent at a location by pointing to that location when that referent is topical or in focus (i.e., has just been signed), (ii) articulating a non-body anchored sign at or towards a location; or (iii) by a previous body shift. In the following example, in a discussion of teaching and communication methods used with deaf children, the use of speech and hearing is assigned to the left of the signer and the use of sign language is assigned to the right of the signer:

(50)



3.3.1.2 The face tier

This tier is used to describe facial expressions in a global way. The expressions may be given more detail descriptions on the other non-manual tiers (e.g. head, gaze, eye, brow, and mouth).

3.3.1.3 The head tier

The head is described with respect to the default position which is head level and upright, facing the addressee. To date, systematic annotation on this tier has primarily occurred in research on negated clauses. The typical descriptors include: NHS (no headshake), HS (headshake), NOD, TILT-LEFT, TILT-RIGHT, TILT-FORWARD, TILT-BACK, TURN-RIGHT, and TURN-LEFT.

[25] The referent may even be a linguistic entity, such as a clause (see Johnston, 1992).

3.3.1.4 The gaze tier

Gaze is coded as directed at: a for 'addressee', t for 'target', o for 'other' or z for 'cannot be coded', i.e., is not visible or can't be determined. To date, this tier has only been used to annotate the gaze behaviour during the production of pointing signs.

3.3.1.5 The eye and brow tier

Eye and brow movements are described with respect to the default neutral position which is relaxed brow with eyes open. Descriptors include: UP, DOWN, EYEBROW-UP, EYEBROW-FURROW, WIDE-EYES, SQUINT, and WINK. Independent or daughter tiers may need to be created for more detailed analysis of these behaviours.

3.3.1.6 The mouth action tiers

Mouth actions include mouthing and mouth gestures. They have only been systematically annotated for a relatively small set of files that were used in a dedicated study of mouth actions. For more details see (Johnston et al., 2016).

3.3.1.6.1 The mouthing tier

Mouthing, the movement of the lips as if saying a word or part of a word of the ambient SpL (in this case, English) is annotated on this tier. Only a relatively small set of corpus files have been systematically annotated for mouthing and mouth gestures

Even though this is an independent tier, all mouthings are annotated by selecting the ID-gloss first, before clicking on the mouthing tier under the ID-gloss when adding the annotation (the annotation field will be automatically aligned with the ID-gloss annotation field). Different types of mouthings are given different annotations (Table 16).

Table 16 The annotation schema for mouthings

M-type (mouthing)	Annotation	Examples
Complete articulation	COMPLETE-WORD	RACE, RABBIT, VILLAGE, FAR
Initial segment	I(NITIAL)	V(ILLAGE), SA(ME), DIFF(ERENT), SH(EEP)
Medial segment	(ME)DI(AL)	(NO)TH(ING), (RE)MEM(BER) , (B)E(ST)
Final segment	(FI)NAL	(SUCCESS)FUL, (FIN)ISH, (IM)PROVE. (TO)DAY
Initial & final segment only	IN(I)TIAL	F(INI)SH, D(EA)F, S(UC)CESFUL
'suppressed' articulation*	(SUPPRESSED)	(LADY), (HAVE)
unreadable**	unreadable	
anticipatory (regressive) spreading	MOUTHING-regr	ID-gloss PT_PRO1SG EXPLAIN Mouthing EXPLAIN-regr EXPLAIN = *"I explained…"*
delayed (progressive) spreading	MOUTHING-prog	ID-gloss FINISH PT_PRO1SG Mouthing FINISH FINISH-prog = *"….I finished"*

* A 'suppressed' mouthing annotation is used in a few instances where the annotators are convinced there is underlying movement congruent with articulating a word associated with a sign, however the mouth does not actually open, e.g. the 'y' of 'lady' when signing LADY. They are identified to distinguish them from mouth gestures, e.g. a EE-like mouth gesture.

**Where annotators were certain a word was being mouthed—there are articulatory motions—but were simply unable to lipread it, it is annotated as *unreadable*.

3.3.1.6.2 The mouth gestures tier

Mouth gestures are all other mouth actions that are not mouthings. The types of mouthings recognized to date in the annotation of the Auslan Corpus are illustrated in Figure 7.

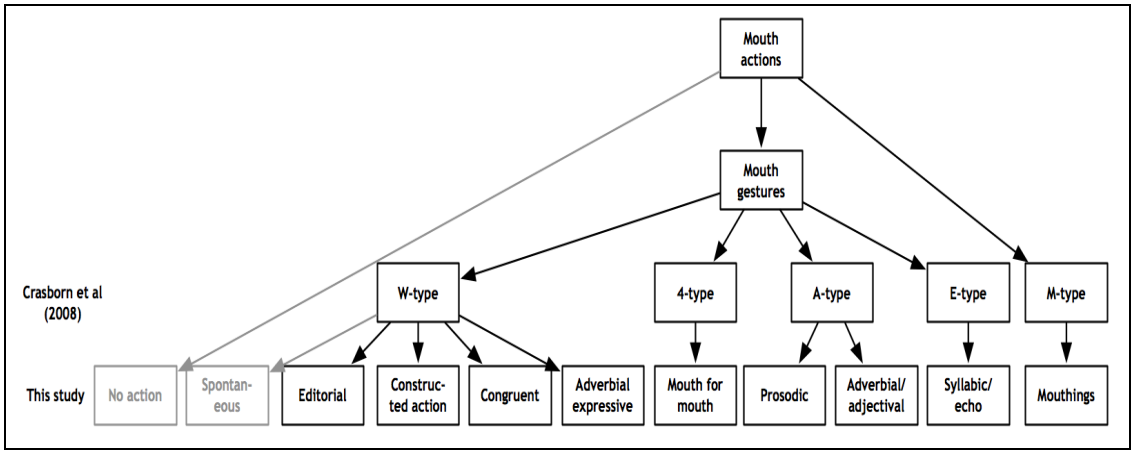


Figure 7 Types of mouth actions annotated in the Auslan Corpus

A brief description of the form of the mouth gesture is inserted in the MouthGestF (Mouth gesture form) annotation field. The meaning of the mouth gesture can also be entered on the daughter tier *MouthGestM*. The type of annotation depends on the mouth gesture type (Table 17).

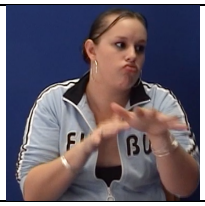
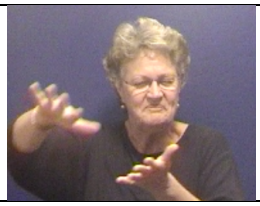
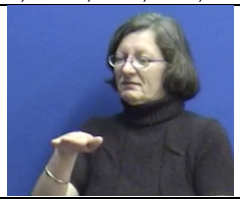
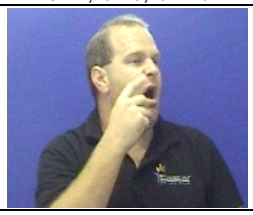
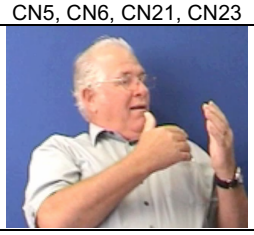
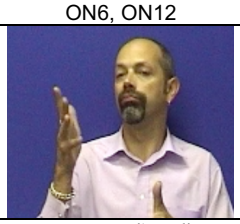
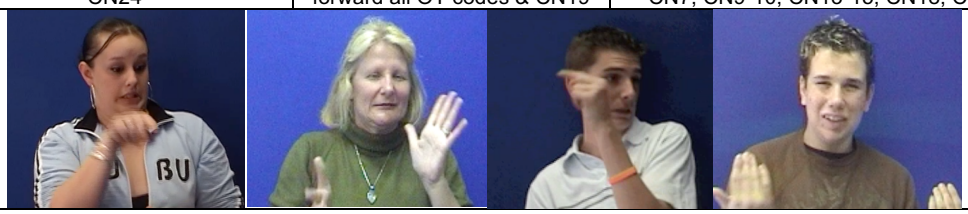
Table 17 The annotation schema for mouth gestures

Mouth gesture	***MouthGestF* tier begins with**	***MouthGestM* tier contains**
E-type (echo or empty)	SYLL_GLOSS (= Syllable)	various meanings as needed Tag tier: -IM (imagistic), -MI (mimetic), -ME (metaphorical)
A-type (modifying)		
prosodic	GLOSS/CODE(H) (H = held)	meaning glosses: ACTIVITY, EMPHASIS or
prosodic (non-specific)	No annotation	Tag tier: -MH (*mouthing held)*
adverbial	Mouth gesture code	meaning glosses: LARGE-AMOUNT, CARELESS, UNPLEASANT, SMOOTH, EASE, EFFORT, SMALL-AMOUNT Tag tier: -IM (imagistic), -MI (mimetic), -ME (metaphorical)
4-type (mouth for mouth)	CMO (= Congruent Mouth Only)	ENACTMENT
W-type (whole-of-face)		
spontaneous	no annotation	
editorial	COMMENT	no further annotation or various meanings as needed
CA (constructed action)	CA_ (= Constructed Action)	no further annotation or various descriptions as needed,
CA using an A-type	CA_GLOSS/CODE	add after the CA_ the A-type mouth gesture gloss/code
congruent	CWF (=Congruent Whole Face)	meaning glosses: EXPRESSION, ENACTMENT, EMPHASIS
adverbial expressive	CA_ADV (= Adverbial)	EXPRESSION
Spreading mouth gesture	ANNOTATION-cont	on all subsequent co-articulated manual sign(s)

Mouth gestures are often closely related to behaviour found during periods of constructed action (or CA) when a signer engages in is often called 'role play' (or 'role shift') especially in sign language teaching materials. When this is the case, the mouth gesture has the tag CA. During CA mouth gestures often spread over units larger than individual signs (see §3.3.3 for further details).

Examples of the descriptive glosses and codes used for the most common mouth gestures are illustrated in Table 18 (for more details on codes see Table 33 in the appendix).

Table 18 Mouth gesture form codes and glosses used for typical exemplars

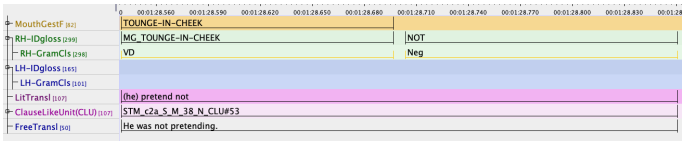
		
BLOW air moves inwards or outwards through the lips which may be pursed or rounded CN8, CN17, ON16-18	BOTTOM-LIP-OUT bottom lip is pushed forward, out or up CN3, CN20, ON11, ON14	DOWN the corners of the mouth are pulled down, mouth can be open or closed, lips can be pressed together, tense or relaxed CN4, CN22, ON4, ON9, ON15
		
LIP-CURL top lip is pulled up on one or both sides, as in a sneer CN1, ON5, ON10	LIPS-OUT lips pushed forward, as in a pout or "shh" CN11-14, CN16, ON16	LIPS-PRESSED ('MM') lips are pressed together but the mouth corners are relaxed CN5, CN6, CN21, CN23
		
OPEN mouth is open ON1-3	PUFF puffed cheeks CP1-8	SLIGHTLY-OPEN mouth is slightly open ON6, ON12
		
SUCKED-IN cheeks are sucked inwards CN24	TONGUE ('TH') tongue pokes out or is visibly forward all OT codes & CN19	LIP-TRILL ('BRR') lips vibrate CN7, CN9-10, CN13-15, CN18, CP5
		
WIDE ('EE') corners of mouth are pulled wide, mouth can be open or closed,lips can be pressed together, tense or relaxed CN2, ON7, ON8, ON13, ON14		

3.3.1.6.3 Mouth actions without a co-occurring manual sign

Mouth actions that have no co-occurring manual sign are annotated with a placeholder on the glossing tier (§3.2.7.2.2).

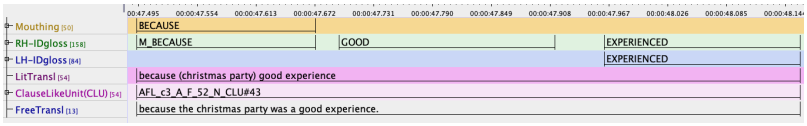
In (51) stand-alone mouth gesture involves pressing the tongue against the inside of the cheek and moving it sideways. The mouth gesture tag is repeated on the glossing tier and prefixed with MG (for mouth gesture).

(51)



Stand-alone mouthings are treated in a similar way. In (52) the conjunction ‘because’ is only expressed with a mouthing—there is no manual lexical sign in the clause which expresses this. The stand-alone mouthing is repeated on the glossing tier and prefixed with M (for mouthing).

(52)



3.3.2 Clauses or utterance units

The linguistic analysis of a corpus needs to take into account the utterance units in which language is packaged and messages exchanged, not just the individual signs.

Utterance units can contain just one sign, but usually they have more than one, and are delineated or held together by their manner of delivery (as articulatory units), by their meaning (as coherent units), and by their linguistic structure (as constructional schemas). If they are not just interjectory fragments, basic utterance units are usually considered to be linguistic constructions of the type ‘clause’. One possible very general definition of a clause is a meaningful symbolic utterance that asserts something about the world or the current conversational interaction by using one element in that utterance to predicate something about another stated or understood element. The predicating element can a verb or an adjective.

These utterance units are often thought of, especially in formal approaches to language description, as being only propositions (information units) which realise what Halliday (Halliday, 1985) calls the ideational metafunction of language. However, he and other linguists have long recognized that utterance units also simultaneously realise two other metafunctions of language: (i) regulating interaction or relationships between the interlocutors, namely the interpersonal metafunction; and (ii) managing or structuring the message output itself, namely the textual metafunction (Harman, 1971; Halliday, 1985) The textual metafunction, especially, is important because it is obvious that the elements of a multi-sign unit

cannot all be uttered at the same time, so the speaker/signer has thus to relate them to each other, and the context of utterance, for the symbolic move to be coherent.

Note 9: Clause versus sentence

The basic propositional and utterance unit of language is called the *clause*, especially when describing the morpho-syntax of a language. A *clause* is centred on a verb which denotes an event, state or relation which involves one or more participants (or arguments). When the proposition or utterance consists only of a single clause these units are also often called *sentences* (or *simple sentences*). However, propositions and utterance units are often not just simple single clauses—they can consist of two or more clauses and are called *composite clauses* or *complex sentences* (to distinguish them from *simple sentences*). *Composite clauses* (or *complex sentences*) include *complex clauses* (in which one clause is embedded in another), or *clause complexes* (in which two or more clauses are overtly joined into a larger unit). In *complex clauses (*or *complex sentences*), the embedded clause is part of a larger clause which called the *matrix clause* (or *matrix sentence*).

3.3.2.1 Clause-like-units (CLU) and showing versus telling

By using language we are able to **tell** someone something in an act of communication. One '**tells'** someone something by encoding it though the lexico-grammatical constructional schemas (structures) of one's language, i.e., in clauses exploiting lexis and morph-syntax as traditionally understood.

In linguistics, the analysis of **telling** is based on the utterance unit in which it investigates the lexico-grammar as manifested in phenomena like word or sign order and patterns (or paradigms) of changes to word or sign morphology. It explains these as a function of, or realisation of, grammatical relations such as subject and object, on the one hand, or semantic, pragmatic and discourse factors, on the other. The typical number of arguments that occur with various verb types in clauses, and the way in which clauses are linked or joined together in the language to form clause complexes are also the focus of this type of grammatical analysis.

However, it will be apparent to anyone who has ever tried to segment a stretch of naturalistic Auslan into utterance or propositional units that signers frequently '**show'** a meaning through indexing, depiction or enactment, rather than '**say'** or '**tell'** it in an utterance encoded primarily though lexis and morpho-syntax. This is actually the same phenomenon we have already seen with respect to different types of signs (§3.2.4.) To recap, symbolic units may be conventional (**telling**), symbolic indexical (**showing** and **telling** combined) or non-conventional (**showing**). Consequently, some symbolic units may be acts of **showing**, not **telling** in a narrow linguistic sense.

Many of these **showing** symbolic units may have equal status as chunks of meaning as those units which are more easily identifiable as clauses**.** Many utterances are made up of all three types of symbolic units and are can be described as composite utterances. (Cf. (Enfield, 2009; Ferrara & Johnston, 2014; Hodge & Johnston, 2014; Ferrara & Hodge, 2018) for spoken languages, and (Johnston, 2013; Janzen, 2017; Johnston, 2019; Puupponen, 2019) for SLs.)

In this annotation schema, the basic articulatory chunks of propositional meaning in the corpus are called *clause-like units* (CLUs) rather than *clauses* in recognition of the dual

'**tell**' or '**show'** strategy exploited by Auslan signers. The name makes the provisional nature of the unit absolutely clear—any CLU could be a '**telling'** instance or a '**showing'** instance, or a mixture of both. In SLs different types of symbolic units are concatenated or woven together into a seamless meaningful stream in the language.

A major task of SL linguistics is to investigate and describe this phenomenon further. One of the main reasons of annotating CLUs is thus not just to justify the glossing of the individual signs therein, but to analyse CLUs in terms of **telling**, **showing**, or **telling and showing** and identifying the constructional schemas they instantiate.

Traditionally, grammar analyses **telling** only, but there are good reasons why **showing** should also partly be included in the grammatical analysis. (Section §4.2.1.2 explains how argument roles of CA can be annotated on a par with grammatical roles of lexical and other signs.) Thus, while CLU annotations do delimit *potential* clauses in the text, the CLU annotation is not a claim that the identified meaningful unit is, in fact, a traditional grammatical construction of the type 'clause'.[26]

3.3.2.2 CLU annotations

The CLU tier and its child tiers are intended to assist in the process of identification, description and analysis of clause structure, where applicable (i.e., an act of **telling**), and to facilitate the comparison of clauses thus identified with other types of meaningful 'non-linguistic'—but still symbolic—**showing** utterance units in Auslan.

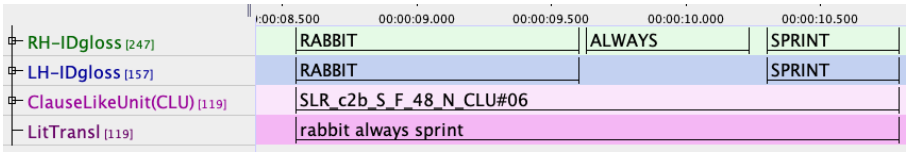
Given that the structure of Auslan above the level of the individual sign is not well understood, the additional annotation undertaken at this primary processing stage is necessarily general, tentative and exploratory, relying heavily on meaning and form in the delineation and delimitation of units. Form at the level of utterance unit means features of production or delivery that relate to non-manual prosody—facial and other non-manual expressions like head movements, speed of articulation, body shifts, pauses and so on.

Our approach is thus once again 'circular' in what we believe to be in the positive and empirical sense, i.e., the whole annotation procedure involves repeated deductive and inductive phases. Of course, some annotations are more form/structure based and some are more meaning/function based but both form and meaning must be in every act of annotation, cf. Consten & Loll (2012). No claim is being made that any of these CLU annotations—or any other annotations used in the Auslan Corpus—are somehow objective theory-neutral labels attached to the raw data.

The duration of each CLU in the video data is identified with a file label and sequence number which is semi-automatically generated in ELAN (Menu > Tier > Label and number annotations), as in the following example:

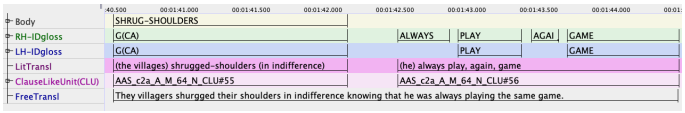
[26] We will use both the terms CLU and clause depending on the context throughout the remainder of these guidelines, but this important caveat should always be kept in mind.

(53)



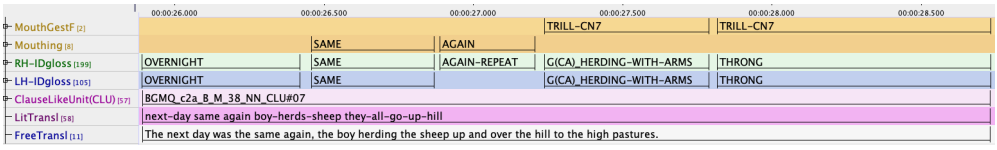
The constituent signs of each CLU are tagged on daughter tiers as a part of secondary processing (as described in §4.2.1) in order to identify, describe and analyse clause structure, where applicable, i.e., as acts of '**telling**'. Example (53) uses three lexical signs RABBIT, ALWAYS, and SPRINT. The CLU can be compared to other types of meaningful utterance units in Auslan that are be acts of '**showing**', like the shrugging of shoulders in example (54) which is used to **show** what the villagers did, i.e., shrugged their shoulders:

(54) (CLU#55)



In (55) there is a combination of **telling** (the conventional lexical signs OVERNIGHT, SAME, AGAIN and THRONG), and **showing** (the herding non-conventional sign).

(55)



3.3.3 Constructed action & constructed dialogue

The non-manual features discussed above are closely related to behaviour found during periods of time in which the signer engages in CA.

Recall from §3.3.1.1 that body movements and shifts (sometimes called 'role shifts'), which are annotated on the body tier, simply exploit (or set up) an association between what is being signed and a location towards which the body is moved or shifted. The association may be with a discourse participant (a 'character') located or deemed to be located at that location, but in itself this association need not also entail any *enactment* of the actions or utterances of the associated referent, as already seen in (50). Enactment which is part of *constructed action* is what concerns us here now.

3.3.3.1 Constructed action (CA)

Enactment of the external physical actions or behaviour of a character (including the narrator's own) is the essence of *CA*. In the literature, CA refers to the use of shifted expressive elements and gestures that imitate the actions of someone other than the signer at the time of signing, i.e., it can also be the signer, but at another time and place. The term *constructed action* was introduced in the sign linguistics literature by (Winston, 1991) because it is often

not a faithful imitation of the character's actions but rather a selective re-enactment or 're-construction' of another's actions.

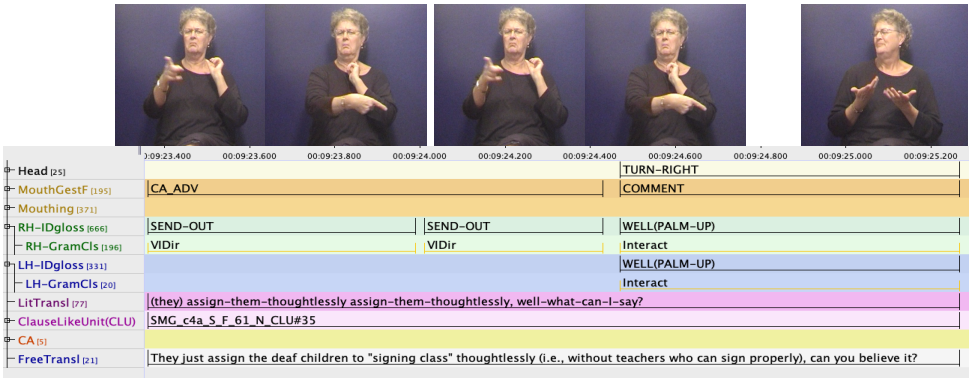
During a period of CA the signer is 'copying' or 'quoting' actions or expressions. This is manifested in facial expressions, movements of the head and body, and/or actions of the hands and arms which are instances of the conventional and symbolic indexical signs of Auslan. CA may occur over a single sign in a clause, a group of signs in a clause, the entire clause, or over several clauses. The annotations for CA are thus either sign-aligned or clause-aligned as the case may be.

Three degrees or levels of CA have been distinguished in the literature: 'subtle', 'reduced' and 'overt' (Cormier, Smith, & Sevcikova, 2015); or 'slight', 'moderate', and 'exaggerated' (Quinto-Pozos & Mehta, 2010). We will use the CA level names **subtle CA**, **reduced CA** and **overt CA**, i.e., replacing Cormier et al's 'overt' with 'full', for reasons explained in the discussion of full CA below.

3.3.3.1.1.1 Subtle CA

Subtle CA usually involves a mouth gesture during the production of a co-occurring manual sign or signs. Many of these mouth gestures frequently also involve other expressive parts of the face, so they are 'W' or 'whole of face' mouth gestures (see §3.3.1.6.2 and also Table 17). Subtle CA is annotated on the mouth gesture tier with the prefix CA_ with or without further descriptors after the underscore. The contribution of the subtle CA to the meaning of the clause is expressed on the Literal and Free Translation tiers. Importantly, in cases of subtle CA there is no additional annotation on the tier dedicated to delineating the time span of the other two levels of CA (in yellow in (56)).

(56)



In (56) the signer pouts and frowns, looking disdainful while signing SEND-TO. The mouth gesture **shows** how the action was done by the understood agent (the education authorities), i.e., with disdain (without regard to the needs of the deaf children). Compare this to the final parenthetical sign WELL where the signer has switched to her own perspective which she conveys to the interlocutor who she is now looking at. Here the mouth gesture annotation COMMENT is not prefixed with CA.

It should be obvious that subtle CA can be difficult to distinguish from mouth gestures that have been described as non-manual adverbial morphemes in many SLs. Further description of a mouth gesture after the CA_ prefix occurs only if the mouth gesture strongly resembles the relatively small set of possible non-manual adverbial morphemes because, in many cases, the way a signer decides to imitate an expression or **show** an emotion through a facial expression can be quite idiosyncratic and highly context dependent for interpretation.) Prefixing this small set with CA_ when appropriate allows us to collect usage-based evidence on the degree of conventionalization of some of the most common mouth gestures. It may well be that many are actually manifestations of subtle CA.

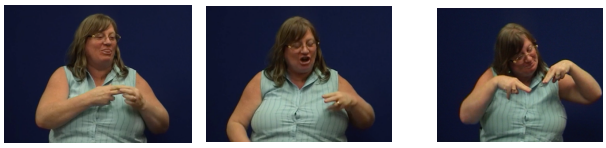
Finally, it should also be noted that it can sometimes be difficult to determine if the mouth gesture or whole of face expression that co-occurs with a manual sign is meant to be associated with whomever is the implied agent (in the above example, the education authorities) or is meant to be read as an expression of the signer's attitude towards the act and the actors, as a kind of meta-comment (in the above example, that she, the signer, has disdain for the actions of the education authorities). If the second interpretation was felt to be applicable in this example, it would not be tagged CA_ADV, but would also be tagged COMMENT.

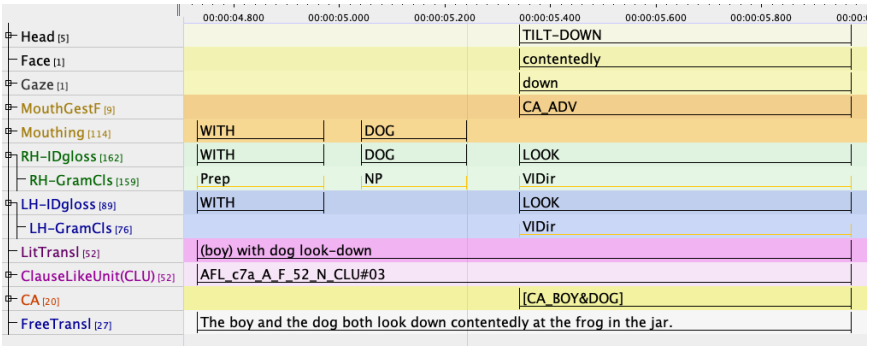
3.3.3.1.1.2 Reduced CA

Reduced CA involves two or more non-manuals *co-occurring* during the production of one or more manual signs (lexical or partly-lexical signs). The period of the CA is delineated on the dedicated CA tier. Annotations are made on the non-manual tiers as appropriate.

In (57), the signer produces lexical sign LOOK (she doubles it to indicate two entities are looking, the boy and the dog) and directs it downwards (**showing** where they looked), while enacting the boy and the dog gazing down with contented expression with a tilted head (the non-manuals).

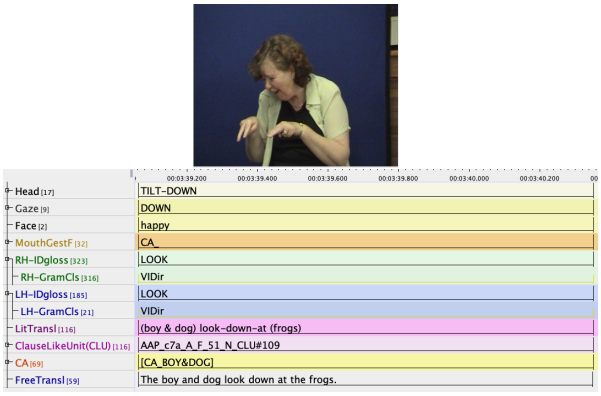
(57)





In (58) the CA co-occurs with the same manual lexical sign (LOOK) but this time there are no other signs in the CLU

(58)



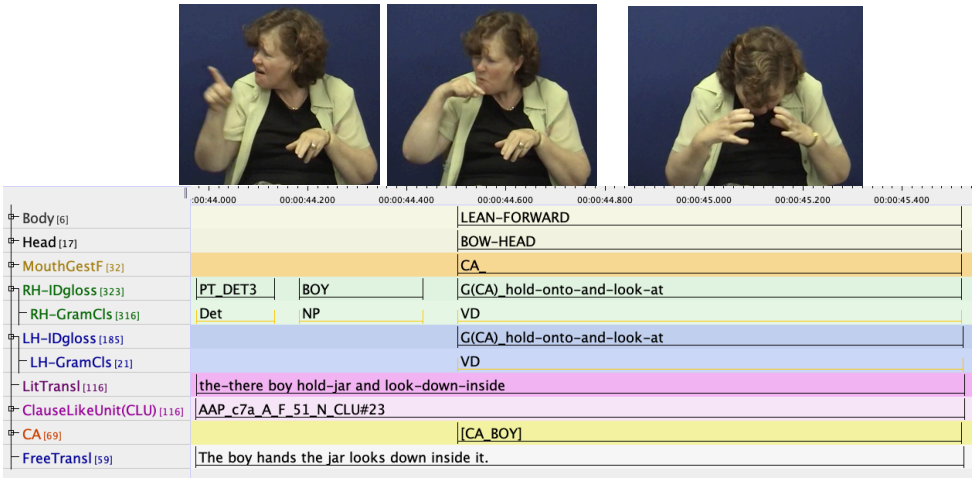
3.3.3.1.1.3 Full CA

What we call full CA (otherwise known as ‘overt’ or ‘exaggerated’ CA in the literature) involves all articulators—non-manual expression, the hands and body—fully engaged in a non-conventional enactment.

We use ‘full’ rather than ‘overt’ because elsewhere in these guidelines we use ‘overt’ to refer to meanings which are explicitly identified using the conventional and symbolic indexical signs of Auslan. In other words, participants and processes in CLUs are often expressed using discrete manual pronoun-like pointing signs, or nouns and verbs signs; spatial relations are sometimes expressed using manual preposition signs; and logical and semantic relations between clauses are sometimes expressed using manual conjunction and subordinator signs. When this occurs, we call this overt. However, during a CLU that contains a rich and full (‘overt’) CA, an overt manual sign for a participant (especially the actor) is often absent. Indeed, the CA encourages this. Thus, even though the CA itself is ‘overt’ (i.e., the signer uses a full enactment rather than a manual lexical sign so it is not ‘hidden’ behind lexical manual signing) the participant is not overt in our use of the word. If anything, it is covert (embedded in the CA).

The full CA may function as one of the constituents of a CLU, along with other signs. In (59) there are three signs: a pointing determiner-like sign PT_DET, the lexical sign BOY, and an enactment of the boy holding onto a jar and peering inside, looking for his frog. On the ID-gloss tier the manual enactment is prefixed with G(CA)_ to mark its semiotic type, followed a description of that enactment. Annotations are also made on other non-manual tiers as appropriate. The enactment is aligned with a period of CA identified on the CA tier, which is prefixed with CA_ followed by the name of the person or entity whose real or imagined behaviour is being enacted.

(59)



Often full CA may be used instead of using any lexical or partly-lexical signs at all, i.e., the whole unit is an enactment. In (60) the signer has taken on the persona of the boy who is holding on to the edges of a hole in a tree while he peers inside looking for a frog.

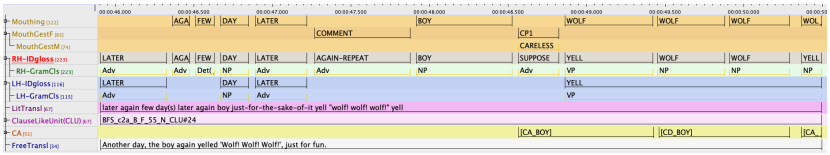
(60)

3.3.3.2 Constructed dialogue (CD)

Enactment of the external physical actions or behaviour of the character may actually present that character's *utterance* (in speech or sign). It is referred to here as *constructed dialogue* following (Tannen, 1986) and (Roy, 1989). The action one copies or quotes are those involved in someone else uttering something. It is a type of direct quotation and is very similar to the (supposedly exact) repetition of the words that someone utters, which may also include attempts at recreating the voice quality, intonation, volume and stress of the original, e.g. *He said "Soooo… WHO do you think YOU are?!"* rather than *He asked me who did I think I was* (which is a form of indirect speech). What speakers and signers are doing in CD is re-enacting the utterance, even if it is never exact. It is 'constructed'.

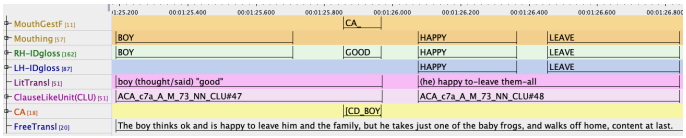
The most straight forward instances of CD identify the speaker, use a verb naming an act of saying or thinking (e.g., SAY, TELL, YELL, THINK, IMAGINE) and then quote the utterance or thought:

(61)



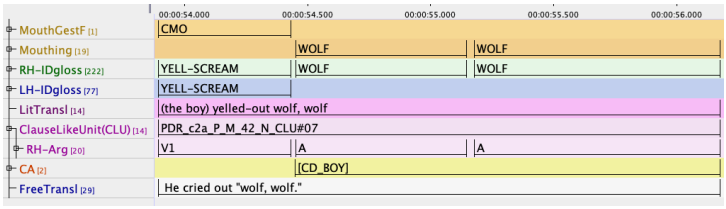
Often there is no verb of saying or thinking at all. The speaker or thinker is identified and this is immediately juxtaposed to the utterance or thought:

(62) (CLU#47)



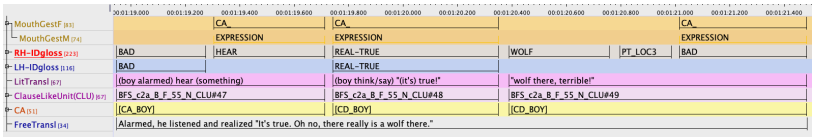
In other cases, the speaker or thinker is omitted (assumed from context) with only a verb of saying or thinking introducing the utterance:

(63)



Finally, the utterance may simply be performed with no overt manual marking of who the speaker or thinker is or any specification of the type of utterance action it instantiates (thinking, imagining, saying, yelling, etc.):

(64) CLU#48 & #49



The examples given above illustrate simple one or two word utterances which are not, in themselves, separate CLUs, i.e., the utterances are not embedded clauses. These types of CDs are described where we deal with the annotation of relationships between clauses (§4.2.2.5).

3.3.3.2.1 Metaphorical or anthropomorphized CA/CD

The entity one mimics (or 'constructs') does not have to be human: it can be an animal, an object, or even something quite abstract. In other words, it is possible for Auslan signers to anthropomorphize non-human and abstract entities. This is contrary to what has been reported in the literature for some other SLs. Consider the following example:[27]

[27] I have my mother to thank for spontaneously producing this at breakfast one day while I was visiting her for a few days.

(65)

Head		RAPID-LITTLE-SHAKES		
Face		STARTLED-AND-WORRIED		
CA		CA_EGG		
ID-gloss	FS_EGGS	BOIL	BETTER	TURN-DOWN

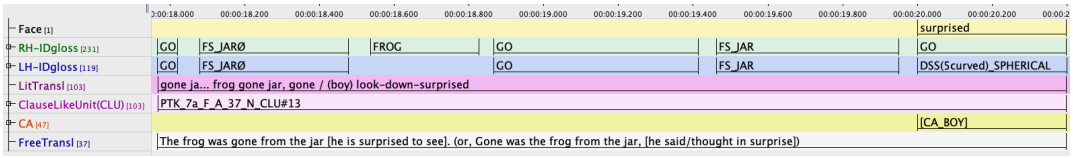
LitTransl Eggs boil (shaking, startled, agitated, worried), better turn-down
FreeTransl The eggs are boiling vigorously and might break so you should turn the stove down.

One imagines the object or entity to be alive and the actions and expressions are assumed to be that of the 'animated' object. Thus, in addition to characters who actually can use speech or signs, signers may attribute to objects emotions and thoughts expressed through signed utterances, or represent ideas though an imagined dialogue between non-human abstract entities.

3.3.3.3 Body partitioning

Body partitioning refers to the situation in which the body of the signer—meaning the head, gaze, face (eye aperture and brows, mouthings and mouth gestures) and torso—are associated with one referent while the manual signs themselves are associated of another (cf. Dudis, 2004). One of the most common environments in which this occurs is where the signs being articulated are depicting or indicating signs describing a scene, while body behaviours such as facial expressions are of an observer of this scene, or one of the participants (characters) therein. Note that the boiling egg example (65) is also an example of body partitioning—the signer's expressions have become those of an anthropomorphised, somewhat flustered egg in boiling water. Annotating body partitioning in examples can be managed using the conventions already described, as in (65) above or (66) following:

(66)



The facial expression in (66) is unambiguously associated with the boy (who has lost the frog). The CA therefore prompts a (slightly) different meaning simultaneously to the meaning of the signed elements. This additional meaning has been inserted in square brackets on the literal translation tier.

One can imagine complex scenarios in which it may be problematic to unambiguously assign non-manual behaviour to a specific character. It is evident that a detailed analysis of body partitioning using corpus data may reveal a need to refine annotation conventions in this regard. Indeed, there may be some unresolved issues regarding the nature of body partitioning. For example, 'body partitioning' of one kind or another may be a constant presence in most signing because, in a sense, a signer is always able to 'modify' or 'comment' on signs they are producing using non-manual elements or facial expression. In other words,

body partitioning may be central to what is normally described and analysed as non-manual adverbial modification.

4 Secondary processing

Secondary processing entails adding to the basic annotations created in primary processing by tagging for phonological, morphological, semantic, syntactic, pragmatic and discourse information about linguistic forms. Individual signs or the clauses they appear in are tagged, depending on the purpose of the analysis. Some tiers use controlled vocabularies.

4.1 Sign-related tagging (tagging sign tokens)

Sign token tagging covers linguistically relevant information such as the specification of phonetic and phonological form, the degree of match of the token to the citation form, the disambiguation of the meaning of a specific sign token in a given context, the assignment of grammatical class membership, and so on. In most cases, but especially tagging for grammatical class, the researcher needs to refer to the co-text in which the sign occurs, e.g., the phrase, clause, or clause complex, in order to make an informed decision.

4.1.1 Form tagging

With respect to sign form, the ID-glosses can be augmented with broad or narrow phonetic or phonological annotations on the transcription tiers. In the Auslan Corpus the options outlined here for tagging for form using a dedicated script have only been added to a small subset of signs for the needs of specific studies, e.g., indicating verbs, mouth actions, and pointing signs. Generally speaking, transcription, as such, has not been attempted (see §2.1.5).

4.1.1.1 The transcription tier and its daughter tiers

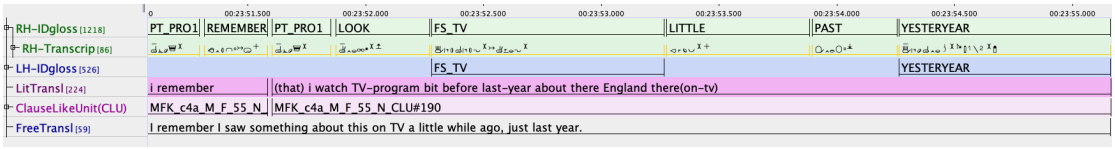
The coding of phonetic or phonological form may be done as one complete string on the transcription tier or on the multiple child tiers, where each significant aspect of phonetic or phonological form, such as handshape, orientation, movement, etc. can be transcribed independently (Table 19).

Table 19 Tiers that tag the RH ID-gloss tier

Parent tier ↳ Child tier	Expanded name	Linguistic type
RH ID-gloss	**Gloss**	**BasicAnnotation**
↳ RH-Mean	Meaning	BasicTag
↳ RH-GramCls	Grammatical class	GramCls
↳ RH-Transcrip	Transcription	BasicTag
↳ RH-Handsh	Handshape	BasicTag
↳ RH-Orient	Orientation	BasicTag
↳ RH-Loc	Location	BasicTag
↳ RH-Move	Movement	BasicTag
↳ RH-NonMan	Other non-manuals	BasicTag
↳ RH-OtherPhon	Other phonetic/phonological	BasicTag
↳ RH-ModOrVar	Citation modification or variation	ModOrVar
↳ RH-Freq	Lexical frequency	BasicTag
↳ RH-CAco	Co-occurrence of sign with CA	BasicTag

Transcriptions may or may not use a dedicated notation system, such as HamNoSys, which can be displayed in the ELAN file, as in:

(67)



At present, the phonological features specified on the other tiers (e.g. handshape, orientation, etc.) are based on a flat parameter model of sign structure. If more sophisticated phonological studies of Auslan were to be use the Auslan Corpus, more specific phonological tiers would be needed.

The *NonMan* child tier of the parent *transcription* tier is for non-manual features that are specific to the particular sign, i.e., not prosodic features that commonly spread over more than one sign, and are not elsewhere coded.

The *OtherPhon* child tier of the parent *transcription* tier contains any phonological features that are not accommodated on other tiers.

Note 10: Sign duration

The basic annotation using ID-glosses is primarily concerned with identifying symbolic units in the discourse. Temporal alignment between articulators is very much based on meaning and apparent intention to communicate. When exact temporal phenomena are the very subject of investigation, however, it will need to be made explicit perhaps by duplicating the ID-gloss tiers, renaming them as, say, 'phonetic duration tiers' and adjusting the duration of annotation fields accordingly. It appears basic ID-gloss annotations can facilitate multiple types of different grammatical investigations of the text, but that phonetically temporally precise ***glossing*** annotations over-complicate the picture and make them less useful for multiple levels of linguistic annotation and analysis: that is why the basic gloss annotation is carried out the way described.

4.1.1.1.1 The orientation tiers

To date, only tags for the palm orientation of pointing signs have been made as part of a study of pointing signs. The tags that were used for non-possessive points are: d = down, s = sideways, u = up, o = other (e.g. when it can't be seen for whatever reason), z = not applicable, e.g., when pointing to oneself in first person points (PT_PRO1SG). For possessive points (which point with the palm side of the hand) only two tags were used: t = target (palm is directed towards the target) or o = other (palm is not directed towards the target).

4.1.1.2 The citation modification or variation tier

ID-glosses simply identify the sign type and thus treat lexical signs as if they appeared in citation form. Of course, signs rarely appear in citation form because they are usually produced in utterances consisting of more than one sign. These other signs have an impact on the beginning and end states of each individual sign in terms of handshape, location, orientation, and direction. Signs may also deviate from their citation form because they have been deliberately and systematically modified to convey various types of meaning. The *citation modification or variation* tier (abbreviated to *ModOrVar* tier) is used to tag a sign as unmodified (citation) or modified ('inflected') in this second sense.

In the annotation files currently in the corpus, the *ModOrVar* tier has only been used to code for sign modification that involve spatial changes. If modified in this way, the type of the

modification is specified in tags that makes a three-way distinction with respect to type of spatial modification (Table 20).

Table 20 An example of tagging used for modification in some annotation files

Tier	tag	Expanded	Explanation
m	m	modified	The sign is modified spatially.
n		not modified	The sign is not spatially modified, and is in its citation form.
	n	not modified, not congruent	The sign is not spatially modified, and in its citation form. It is not congruent with the spatial framework. If it had been modified it would/should have looked different to the citation form.
	n/a	Not-applicable because body-anchored	The sign is not spatially modified nor can it be because it is a body-anchored sign.
	cg	not modified, but congruent	The sign is not spatially modified, and is in its citation form. It is, however, congruent with the established spatial arrangement. If it had actually been modified, it would/should still look like the citation form.

The actual form of the modification can be coded separately on one of the relevant transcription tiers, e.g., 'other phonological', but this has not been done to date.

The token form of a sign type may also be influenced by each individual signer's pronunciation or signing style. Idiosyncratic deviations from the usual form are not annotated at all, or at least not on this tier. Of course, such annotations could be made as part of a research project into this specific phenomenon. If so, a dedicated tier should be created for this purpose.

4.1.2 Semantic and function tagging

4.1.2.1 The meaning tier

As explained in §3.2.5.1 that the meaning tier is used when a sign either has not already been identified and recorded in the lexical database, or does not have the meaning previously associated with it (e.g., as a keyword) even though the sign is already in the lexical database. (This also covers situations where a sign has been glossed using what is morphologically a noun in English and has been associated with only nominal keywords, yet the token clearly shows it being used as a verb, or vice versa.)

4.1.2.2 The grammatical class tier

This tier is used to categorise signs very broadly into function or grammatical classes (aka 'word classes' or 'parts of speech'). The grammatical classes and tags used in the Auslan corpus are listed in Table 21.

Recall that ID-glosses are simply based on an English word most commonly associated with a given sign and cannot be relied upon to identify the function or grammatical class of a sign in Auslan in a given context, e.g., the form of an Auslan sign commonly used as a verb (thus glossed using an English verb) could be used as a noun in another context without any necessary change in its form. The grammatical class label is thus used to clarify the role each sign is playing in a clause.

Table 21 The Controlled Vocabulary (CV) for grammatical class tags

CV tag	Expanded	Description
Signs that name, identify or show entities		
NorV	Noun or Verb	A sign which could be analysed as either a noun or a verb.
NP	Noun: Plain	A noun sign which cannot be re-located in space, often also body anchored.
NLoc	Noun: Locatable	A noun sign that can be re-located in space, but probably cannot be moved through space.
ND	Noun: Depicting	A partly lexical sign that denotes or describes an entity or participant.
Pro	Pronoun	A sign that points to a referent, usually with the index finger.
Loc	Locative	Points to a location or to establish a location.
Signs that name, identify or show processes		
NorV	Noun or Verb	A sign which could be analysed as either a noun or a verb but there is not enough evidence to decide either way.
VP	Verb: Plain	A verb sign which cannot be physically moved about in space. These verbs are usually body anchored.
VD	Verb: Depicting	A partly lexical sign that denotes or describes a process, activity or relationship.
VIDir	Verb: Indicating Directional	A verb sign that can change its start and end positions in the signing space. It can be moved meaningfully through space (this usually means can also be located). This also implies location modification.
VILoc	Verb: Indicating Locatable	A verb sign that can change its location in the signing space. Tends to be used for signs that cannot also change direction.
Signs that modify entities or processes		
Adj	Adjective	Modifies a noun.
Adv	Adverb	Modifies a verb or an entire clause or complex sentence.
Aux	Auxiliary	Co-occurs with a main verb, and expands its meaning in some way.
Neg	Negator	Negates a verb or an adjective and thus the clause in which it occurs, so is not unlike an adverb.
Num	Number	A sign for a number, used to describe quantities (esp. times and dates)
Det	Determiner	A pointing sign that signals that a named entity is known or familiar in some way or is a particular one of its kind.
Det(Lex)	Determiner	A lexical quantity sign contiguous with another lexical sign (noun) that quantifies the latter in some way.
Loc	Locative	Points to a location or to establish a location.
Signs that link signs, phrases or clauses		
Conj	Conjunction	Joins other signs or sign phrases or clauses.
Prep	Preposition	Grammatical words that fulfil a wide range of functions (esp. linked to meanings associated with direction and location).
Buoy	Buoy	A handshape held up to represent/mark a referent that is being mentioned.
WH-Rel	Relative pronoun	A question sign used in a non-interrogative function, such as a relative pronoun to introduce a complement phrase.
Signs that have other functions		
WH-ProQ	Wh- Pronoun Question sign	A pronoun question sign such as WHO, WHAT, WHERE, WHEN, HOW-MUCH, WHAT-AGE, etc.
Interact	Interactive	An expression of emotion or attitude and usually appears on its own, appears not to enter into any structural/syntactic relationship with any other surrounding elements (i.e., not part of a grammatical sequence of other signs).
DM	Discourse marker	Marks stages or transitions in a text.
Fragment	Fragment	A unit that appears not to enter into any structural/syntactic relationship with any other surrounding elements (i.e., not part of a grammatical sequence of other signs).
Salutation	Salutation	Conventional sign or signs used in greeting or leave taking.
Title	Title	Precedes the name of a person, showing their social role or status.
Unsure	Unsure	Used to show an attempt has been made at categorization but no decision was arrived at.

So, whatever grammatical class label is used it should be remembered that (i) it may not be congruent with the English-based unique ID-gloss for the sign; and (ii) the same sign, with the same ID-gloss, may appear elsewhere in the corpus with a different grammatical class label, appropriate to that context of use. In other words, the grammatical class of a sign token can only really be determined by looking at the utterance unit (clause or CLU) in which it is used.

Note 11: Grammatical class and pluri-functional signs

The different functional roles a sign with a given ID-gloss can assume in Auslan can be ascertained by a multi-tier search in ELAN for the overlap of a particular ID-gloss with grammatical class tier annotations. Inspection of the matches can also be used to determine if any systematic morphological change is associated with use in any role.

The full range of grammatical classes needed to describe the roles all signs play in various types of Auslan constructions has yet to be determined and the grammatical class of some kinds of signs, like pointing signs, is still open to debate. Assigning grammatical class is thus not a simple or straightforward procedure and a string of signs (a phrase, clause, or complex sentence) may be parsed by different researchers in slightly different ways. This is also true of other SLs (Schwager & Zeshan, 2008).

4.2 Clause-related annotation and tagging

Once delineated, CLUs can be analysed and annotated in relation to their internal structure (§4.2.1) or in relation to the CLU as a whole (§4.2.2). The tiers currently used in these types of annotations are listed in Table 22.

Table 22 The ClauseLikeUnit(CLU) tier and related tiers

Parent tier **↳ Child tier**	**Expanded name**	**Linguistic type**
CLUcomplex	CLUs overtly related to each other	BasicAnnotation
↳ OvertDependencyType	Nature of expression of dependency	BasicTag
CLUwithinCLU	Complement and embedded CLUs	BasicAnnotation
↳ OvertEmbeddedType	Nature of expression of embeddedness	BasicTag
CLUcomposite	Simple or complex clauses, or clause complexes	BasicAnnotation
ClauseLikeUnit(CLU)	**Clause-like unit ('utterance/meaning unit')**	**BasicAnnotation**
↳ RH-Arg	Argument identification	ClauseArguments
↳ RH-MacroR	Macro-role of argument	MacroRoles
↳ RH-SemR	Semantic role of argument	SemanticRoles
↳ RH-overtSUBJ?	Overt subject?	overtSUBJ?
↳ LH-Arg	Argument identification	Arguments
↳ LH-MacroR	Macro-role of argument	MacroRoles
↳ LH-SemR	Semantic role of argument	SemanticRoles
↳ LH-overtSUBJ?	Overt subject?	overtSUBJ?
CA	Constructed action or constructed dialogue	BasicAnnotation
↳ CA-Arg	Argument identification	ClauseArguments
↳ CA-MacroR	Macro-role of argument	MacroRoles
↳ CA-SemR	Semantic role of argument	SemanticRoles
↳ CA-overtSUBJ?	Overt subject?	overtSUBJ?

The following sections describe and exemplify the clause related annotations and tagging summarized in Figure 8.

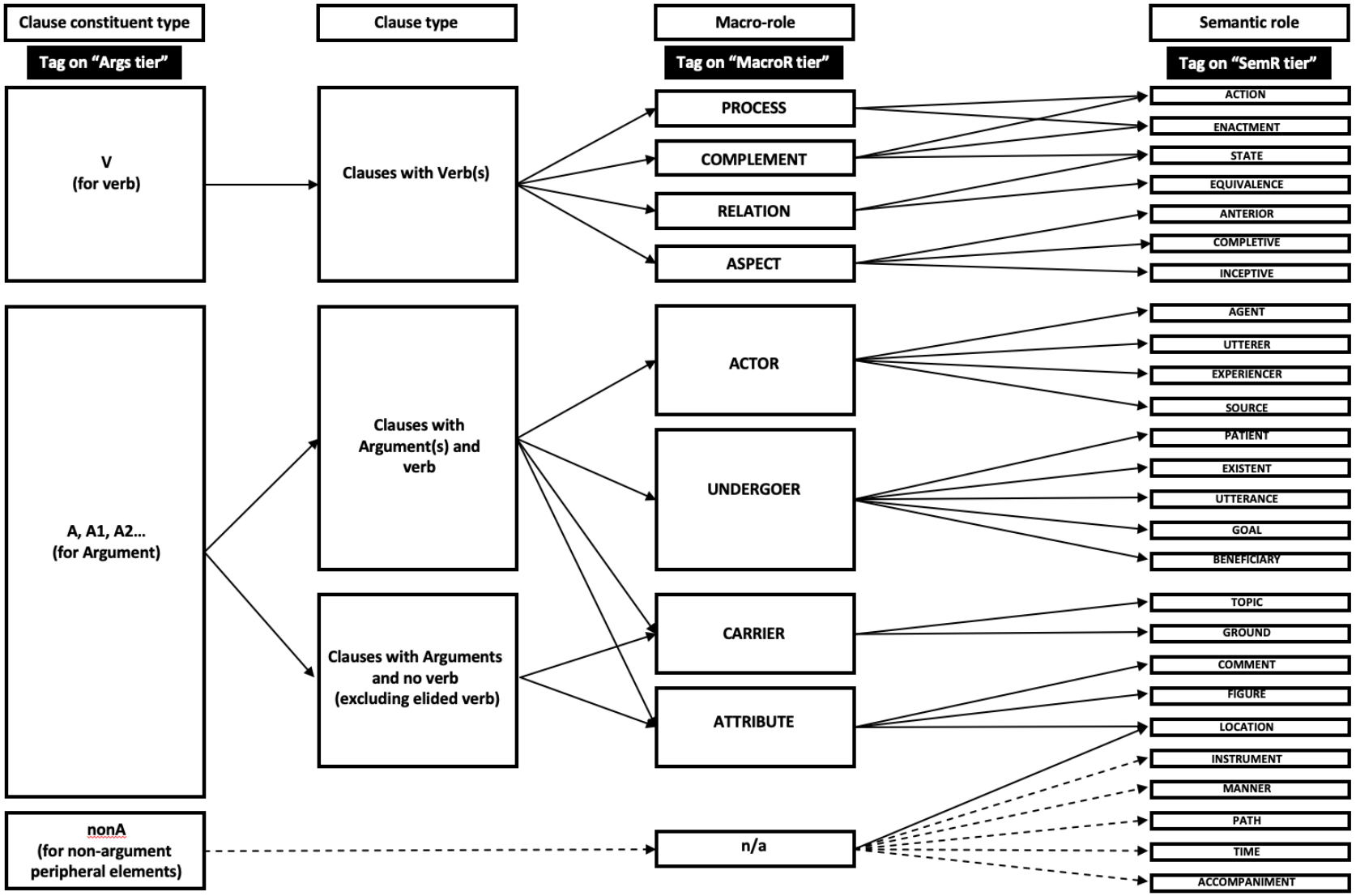


Figure 8 Summary of Argument & Constituent tagging

4.2.1 Core constituent level annotation and tagging

As explained in §3.3.2, CLUs are coherent utterance units identified on the basis of both form and meaning.

A clause is made up of constituent signs or words some of which form part of the core of the clause, and some which are peripheral. The core of the clause consists of the predicate (verb/s that denote processes or relations) and the argument/s (nominal/s or nominal phrase(s) that denote participants in state of affairs described therein). Other elements of the clause, such as discourse markers and some gestures and lexical and phrasal adverbials of time, location, manner, etc., convey circumstantial information that qualifies in some way the basic state of affairs. These peripheral elements are regarded as adjuncts to the clause and are tagged as non-arguments (abbreviated with the tag *nonA*).

Some CLUs are tagged as 'fragments' (on the CLUcomposite tier, see 4.2.2.6) because they are false-starts, interjections, or backchannels and should not be considered or counted as potential clausal constructions.

Note 12: Excluding fragments from argument structure types

> **Searching and filtering annotations:** In a multi-tier search in ELAN or an Annotations From Overlaps export of the annotations, the overlap of a CLU with a fragment tag on the CLUcomposite tier allows one to quarantine these units and exclude them from consideration of argument structure types.

A clause constituent is an overt manual sign unit that names or identifies a participant, process or relation in the state of affairs expressed in the CLU. They include all types of manual signs, as well as enactments (CAs) or gestures, so they are not just lexical or partly-lexical manual signs. Clause constituents may also be expressed as non-manual signs: for example, as mouthings that name a participant or process not explicitly identified in a co-occurring depicting sign; as mouthings with no co-occurring manual sign; as enactments that identify a participant or process not expressed in a co-occurring manual sign; or as enactments that occur with no co-occurring manual sign. These different types of CLUs are annotated as described below.

Indicating verbs use directional and/or spatial modifications that express argument roles associated with the verb. These modifications are usually thought of as **telling** and/or **encoding** these roles through inflectional morphology by most sign linguists (the inflection being the change of beginning and end locations of the directed part of the sign). However, they can also be thought of as **showing** and/or **indexing** these roles. In our theoretical framework, we prefer the second interpretation of the phenomenon.)[28]

[28] The differential treatment this phenomenon is partly due to on-going research about the nature and role of these types of sign modifications in Auslan. Early research by de Beuzeville et al (2009) suggested that these sign modifications are not as systematic nor consistent as once thought and thus do not truly encode argument roles. Further research on the possible absence of autochthonous syntactic relations in Auslan offered support for this position (Johnston 2019).

Irrespective of the theoretical linguistic status of the modified components of indicating verbs, they are considered as 'covert' in the annotation schema so they are not annotated as separate constituents and arguments. The indicating verb itself is, of course, still a verbal constituent of the CLU.[29]

An account of the attested orders of overt arguments (and the macro-roles and semantic roles the arguments instantiate in each possible order), is required before any CLU can be confidently claimed to be a token of a language-general or language-specific construction of the type 'clause' or indeed of any other type of propositional or grammatical unit one may wish to propose, e.g., one which may exploit other representational strategies that may or may not be unique to SLs.

Finally, arguments of a verb may simply be unstated. They are inferred from the linguistic context or context utterance. Inferences tend to be revealed in the free translation.

4.2.1.1 Overt clausal constituents and arguments

By identifying the main predicating constituent (the verb or verbs) and the major discrete separate manual and non-manual units that act as arguments of the verb in its clausal context, we are able to determine their type, and the number and order of occurrence of arguments in different types of clauses. Clausal constructional schemas for Auslan can then be proposed based on the repeated associations of the number and position of overt arguments in particular macro-roles and semantic roles, correlated with clause semantics (Aktzionart) and process transitivity type (see §4.2.2). Particular alignments of semantic roles, argument position, verb morphology, and the interpretation of elided arguments across clauses can then be used to argue for or against the presence of grammatical (syntactic) relations, such as Subject, in the language.

Note 13: Phrase structure

A note on phrase structure: other modifying or specifying elements in the clause (determiners, adjectives, numbers, and quantifiers that co-occur with nominals; or adverbials that co-occur with verbs) have been simply tagged as 'nonarguments' (nonA) because identifying noun phrase structure is not essential in determining the order of core constituents and arguments in clauses. Thus only the heads of what may be considered noun phrases or simple verb phrases have been systematically identified to date in argument structure tagging. (However, nonA's may be relevant in explaining some of these patterns, e.g., large or 'heavy' phrasal constituents have a tendency to be placed clause finally in some languages. To see if this is relevant in Auslan, one would be obliged to annotate phrase structure as well.[30]) Complex verbs and verbs negated with a manual negator sign, on the other hand, are given more detailed tagging as explained below (see §4.2.1.1.1.1 and §4.2.1.1.1.2). The current tagging on the clause arguments tier in the Auslan Corpus is thus not suitable for an analysis of the internal structure of nominal phrases or verbal phrases.[31]

[29] The presence or absence of this type of verb modification is coded on other dedicated tiers, e.g., the modification or variant tier.

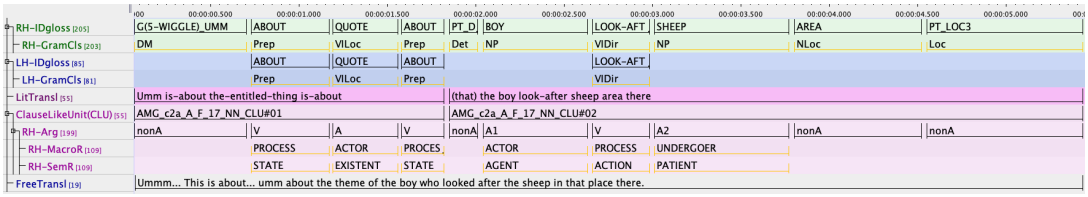
[30] It should be noted that even without detailed phrasal analysis one can still get some indication of the 'weight' of noun phrases by exporting current annotations and counting the number of arguments (A's) that have multiple nonA's (potential parts of phases of which the A is a head) before or after them within individual CLUs. However, one would still need to know the structure of the phrases to make linguistically informed generalizations about the interaction between size and type of phrases and their CLU position.

[31] Noun phrase level annotation is not described in this version of the guidelines because it is being developed and refined as part of some on-going research into noun phrases.

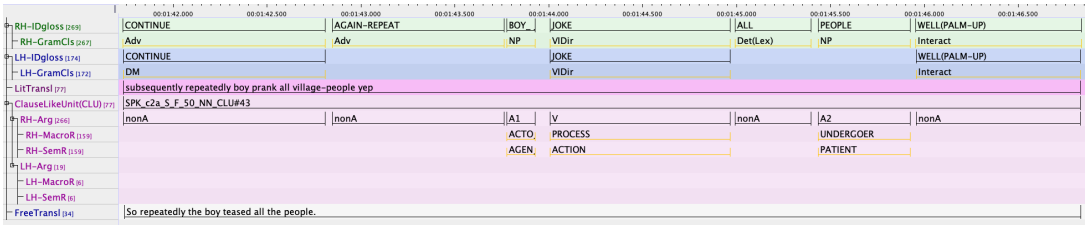
4.2.1.1.1 The Argument tier

The identifiable overt signs, most of which are manual, are annotated on the clause arguments tiers (RH-Arg etc.).[32] An argument is labelled as *A* (or is numbered if there is more than one), a verb is labelled as *V* (or numbered if there is more than one), and non-arguments are labelled *nonA*:

(68)

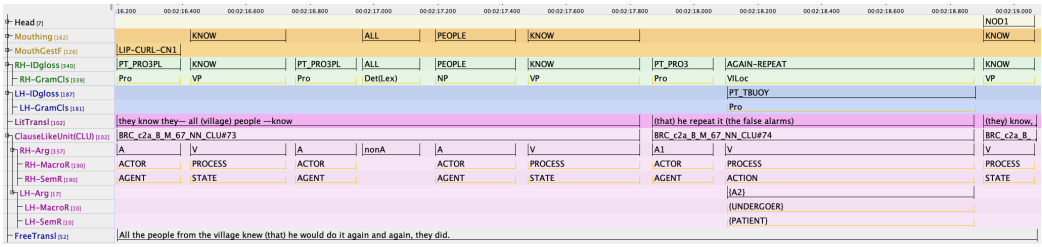


(69)



In (69) there is no independent, or independent and simultaneous, left (weak) hand activity in the CLU. Consequently, there is no argument annotation on the left hand tiers. If this was the case it would be annotated, as in CLU#74 in (70):

(70)



Notice that in (70) the left (weak) hand argument annotations are enclosed in curly brackets. This enables them to be easily distinguished from the right (strong) hand argument annotations if annotations are exported into a spread sheet program. [33]

Notice also the same argument occurs several times in (70): once as a repetition of the pronoun-like pointing sign PT_PRO3PL, and once as the lexical sign PEOPLE. A second occurrence of an argument like these, is not coded as a new argument (A2, A3, etc. as the

[32] The clause arguments tier is a daughter of the independent CLU tier. When assigning argument tags to sign glosses that fall in the domain of a clause annotation, select the sign gloss then insert a new annotation on the clause arguments tier by clicking within that selected time interval. By doing this the annotation on the clause arguments tier will automatically be fully aligned with the gloss annotation field on the ID-gloss tier.

[33] Henceforth, if there is no independent weak hand activity in an example (which may be the only manual activity at the time or which may be simultaneous with strong hand activity), the weak hand annotation tiers are omitted. This helps to reduce the size of the example image as well as make it simpler to read.

case may be), but receives the same tag as the first instance because the tag A2 implies there is another second different argument (A1), with a different role, in the same clause.

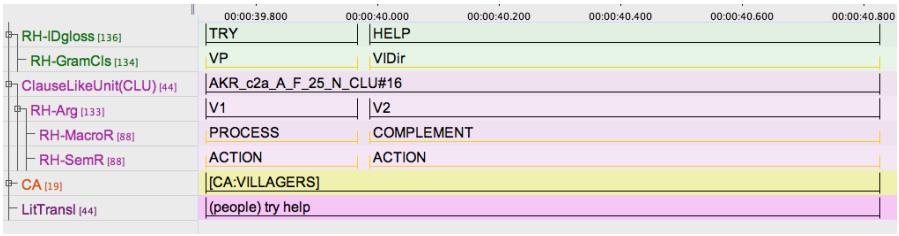
4.2.1.1.1.1 Complex verbs

The presence of a V1 code implies that there is also another verb or verbal element in the clause—the V2. Auslan has several complex or multi-verb constructions in which we use these annotation tags for multiple verbal elements. When aligned, the annotations for each type are distinct and this means that in multi-tier searches in ELAN or in annotations exported for analysis in data spreadsheets, the constructions can be distinguished and aggregated accordingly.

4.2.1.1.1.1.1 Verb complements

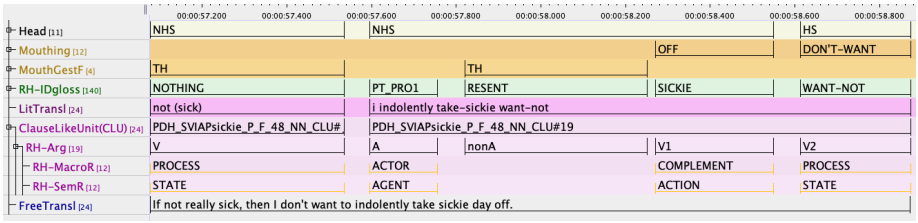
In these verb+verb constructions the one verb is an argument of the other verb and completes the verb phrase, i.e., it is a complement. Each verb is assigned one of the grammatical sub-classes of verb, as appropriate, and is tagged on the Argument tier as a V (V1 and V2 according to sequence). On the macro-role tier the complement verb, which is almost always the second verb, is tagged complement. The semantic-role tags will vary according to the type of process.

(71)



And in reverse order:

(72)

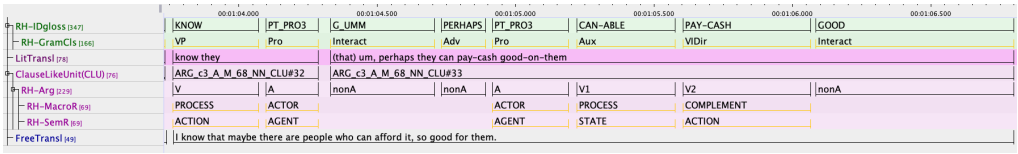


4.2.1.1.1.1.2 Modals

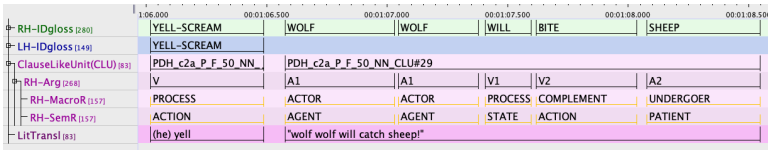
In these constructions one verb (the modal verb) adds meaning to the other main verb, such as expressing ability/possibility (CAN), intention (WILL), or obligation (SHOULD/MUST/BETTER). The modal verb is tagged as Aux on the grammatical class tier, and tagged as a V on the argument tier; and the main verb is tagged as one of the sub-types of Verb on the grammatical class tier and as a V on the argument tier. Depending on the order they appear in the CLU (it seems the modal verb may follow the main verb as well as precede it), the first will be V1 and the second V2. The modal verb is tagged as PROCESS/STATE on the macro-role tier and

semantic-role tiers respectively; the main verb as COMPLEMENT (its semantic-role tag will vary according to the type of process). The alignment of these tags thus distinguish modal verb constructions from simple verb complement constructions.

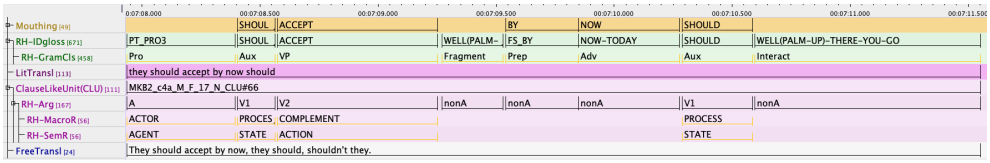
(73)



(74)



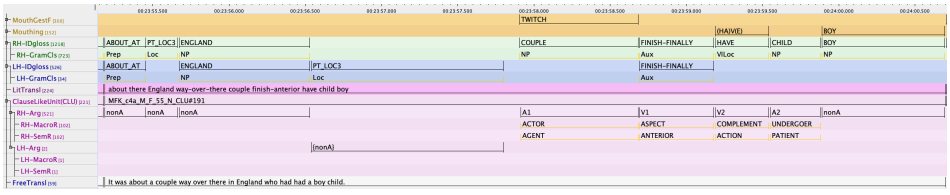
(75)



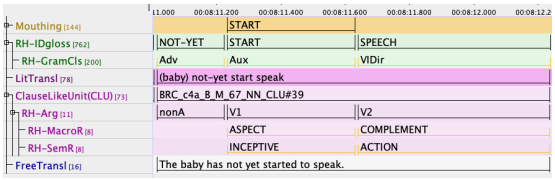
4.2.1.1.1.3 Aspect

In these constructions one verb (a lexical aspect verb) modifies the meaning of the main verb. The aspect verb is tagged as Aux on the grammatical class tier, and tagged as a V on the argument tier; and the main verb is tagged as one of the sub-types of Verb on the grammatical class tier and as a V on the argument tier with each also numbered (V1 or V2) according to the order they appear in the CLU (the lexical aspect verbs may precede or follow the main verb in Auslan). The macro-role tag is ASPECT for the auxiliary, and COMPLEMENT for the main verb. Their semantic-role tags will vary according to the type of aspect expressed or the type of process. Once again, the alignment of these tags distinguish this construction from simple verb complement constructions, and modal verb constructions.

(76)

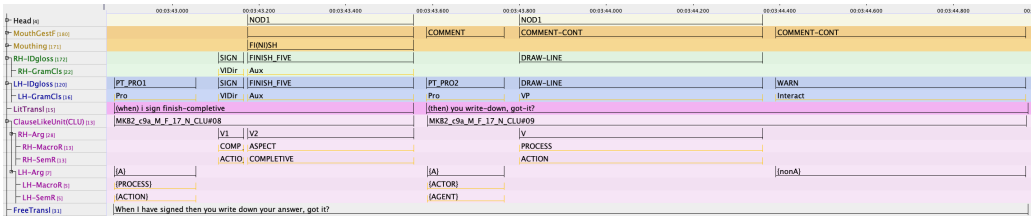


(77)



And in reverse order:

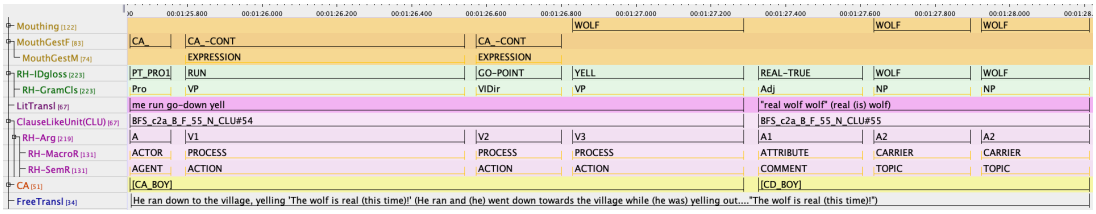
(78)



4.2.1.1.1.4 Serial verbs

Auslan appears to have serial verb constructions, i.e., the predicating verb can be realized by two or three distinct verbs in a tight contiguous series. All the verbs are tagged as one of the sub-types of Verb, as appropriate, on the Grammatical class tier; as a V on the Argument tier (numbered in sequence of appearance in the CLU, as V1, V2, V3, etc.); and, importantly, none are tagged as AUX on the grammatical class tier or as ASPECT or COMPLEMENT on the macro-role tier. The semantic-role tags will vary according to the type of process.

(79)



In (79) the series of three verb signs describe one complex multi-faceted action or process and as part of one clause, rather than a series of three clauses two of which have omitted subject-like arguments, as in the second free translation: “He ran and (he) went down towards the village while (he was) yelling out....”. The construction *go get* in English is like a mini-serial verb (e.g., “Go get me a coffee”).

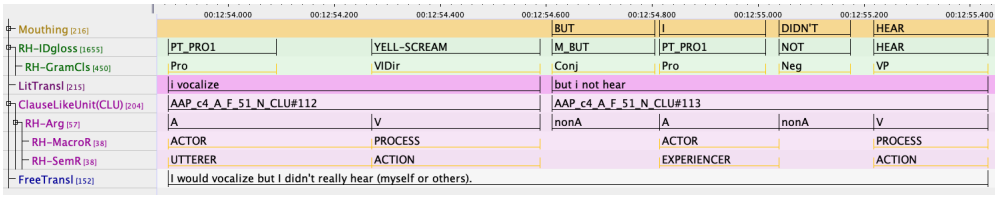
For a sequence of verbs to be called a serial verb and be identified as one predicate, the first criterion of the following four must be satisfied, as well as at least two of the others:

1. The verbs appear to have the same ‘subject’ or topic.
2. There is semantic unity in the action being described, i.e., it is really one complex action.
3. The verbs appear to form as one phonological unit.
4. The prosody of the string of verbs and other constituent signs suggest one overall unit.

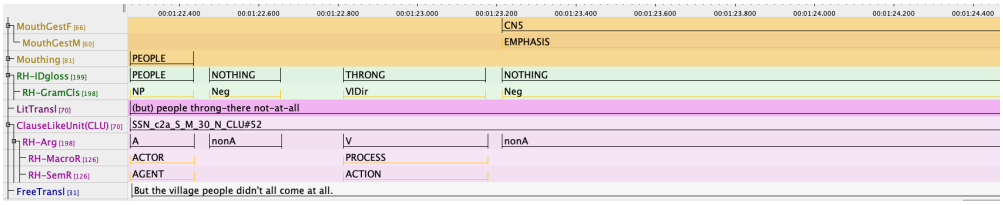
4.2.1.1.1.2 Negated verbs

In Auslan, verbs can be negated by using one or more of the five manual negative signs NOT, NOTHING, NO-WAY, BAN, or DO-NOT (see §3.2.5.7). Generally speaking, these signs are like adverbs because they modify a verb (or an auxiliary or another adverb) in a clause. However, they have been given the grammatical class label NEGATOR (NEG) (to distinguish them from other adverbs) because they do nothing but negate the clause and this is a feature that distinguishes them from other adverbs. By far the most common negators are NOT and NOTHING. Like adverbs, they are also tagged as nonAs on the argument tier:

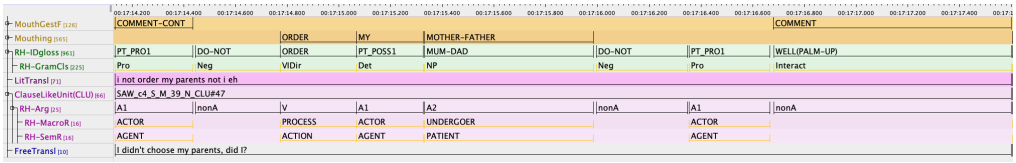
(80)



(81)



(82)



The alignment of annotations for negators is unique so one can do multi-tier searches in ELAN or filter exported annotations in a spreadsheet and aggregate signs used in negation. Searching for clause negation is also assisted by the fact that, by convention, any literal translation of a negated CLU must contain the word '*not'* when one of these negators is used.

4.2.1.1.1.2.1 Negative adverbs and negation

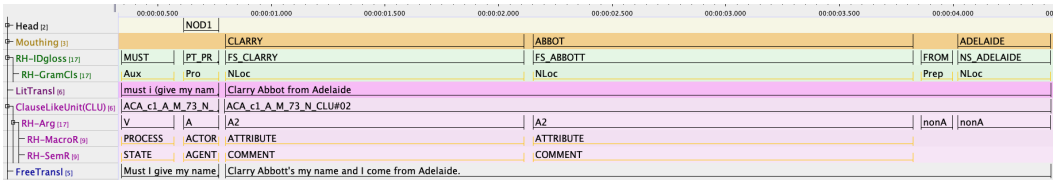
There are negative adverbs in Auslan, such as NEVER, NOT-YET, and FEW ('seldom/rarely'). In the case of NEVER and NOT-YET they do more than just negate the main verb — they also specify the time frame in which the non-occurrence of the verb is applicable. NEVER means 'not at any time' and NOT-YET means 'not at any time up to a particular time'. They are tagged as adverbs, not negators, and treated the same as adverbs in the annotations. Importantly, for identifying the negated clauses they create, in their associated literal translations, the words 'never' or 'not-yet' are enough to signal negation. There is no need to include the word 'not'.

FEW (meaning 'seldom/rarely' when it functions as an adverb), on the other hand, does not technically create a negation: it means 'on a small number of possible occasions' or 'from time to time and in the minority of possible occasions', even though this could also translated or expressed as 'not often' or 'not frequently' in English. The words 'seldom' or 'rarely' occur in the literal translation when this sign is used. It is not included in negation counts.

4.2.1.1.1.2.2 Modal verbs and negators without a main verb

Adverbs and auxiliaries often substitute for, or modify and substitute for, a verb, verb phrase or clause that has just been produced by the signer or the interlocutor, i.e., it is topical. In (83) the signer replies after having been asked to give their name by the interviewer:

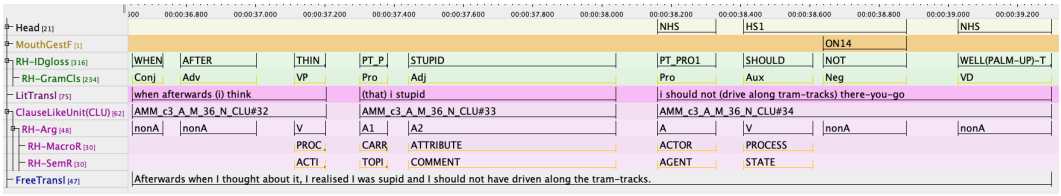
(83)



The modal auxiliary is tagged as V on the argument tier on the argument tier, rather than V1 or V2, because it is the only verbal element in the clause. Thus, a modal auxiliary (grammatical class AUX) tagged as V means there is an omitted or understood main verb in that clause. This missing main verb or verb phrase is written in parentheses in the literal translation, as in (83).

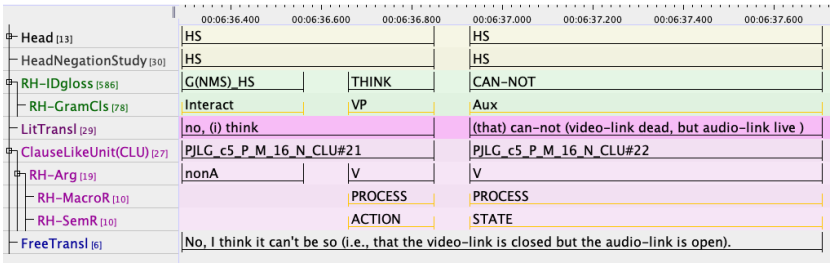
A NEGATOR can also appear with a modal auxiliary in clauses that have an omitted main verb. In (84) the signer has recalled when, as a young man, he drove his car along some railway/tram tracks in order to win a dare (mentioned earlier in the text):

(84)



Indeed, sometimes the modal auxiliary is the only sign in the clause:

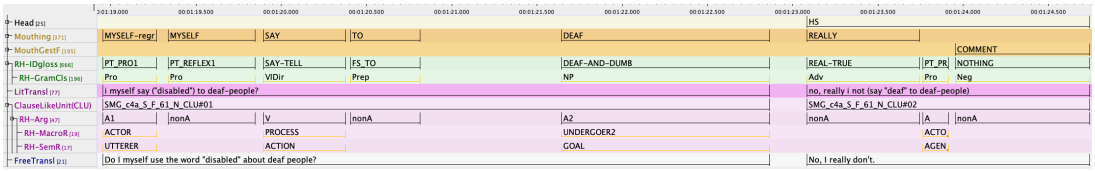
(85)



Notice in (85) that the modal auxiliary also negates the interlocutors statement (which was 'the video-link was dead, but the audio-link was live').

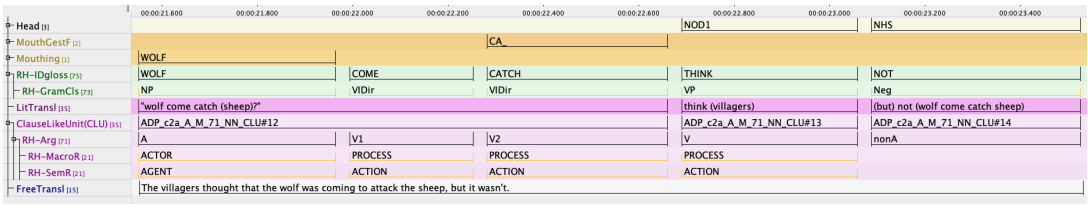
Similarly a NEGATOR may be the only sign standing for the (negated) verb in the CLU:

(86)



Or it may be the only sign in a clause (CLU#14):

(87)

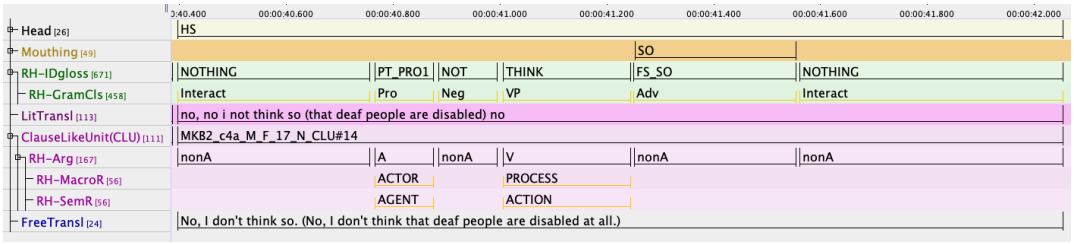


Clauses like these are not fragments, but they appear to have either only a single argument which is neither a carrier nor an attribute and no verb, or no arguments or verb at all, because negators are tagged as nonAs. The literal translation reveals that there is a stand-alone negator.

4.2.1.1.1.2.3 NEG (negator) or INTERACT (interactive)?

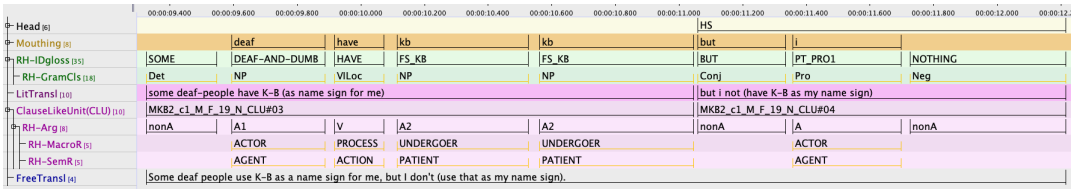
The negative signs so far discussed can be used as a response to a question to mean simply 'no'. When used in this way, they are tagged with grammatical class interact (for 'interactive') and with nonA on the Argument tier. Depending on pausing and/or additional material following it in the response, the 'no' is either the only sign in a CLU (which is tagged as a fragment), or the first or final element of a longer CLU, but still, of course, a nonA. Often, both occur in the same CLU:

(88)



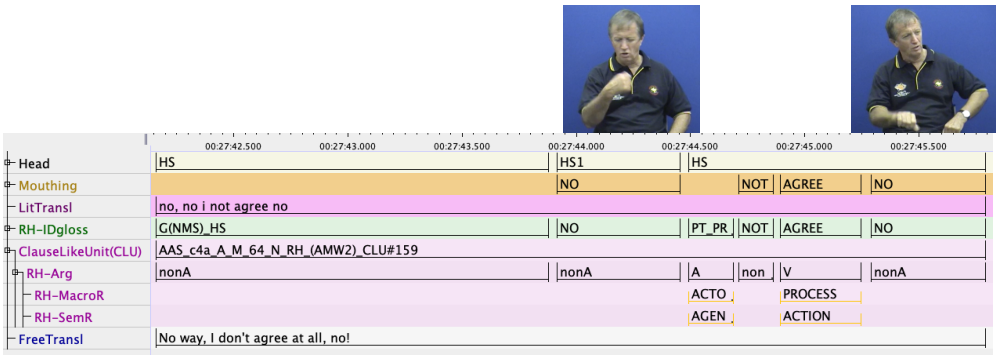
It is sometimes difficult to determine if a sign is a simple 'no' (INTERACT), or stands for 'not', i.e., it is a NEGATOR substituting for a verb or verb phrase. It helps to note that (i) as an interact in a longer CLU it is often the first sign in the CLU and often accompanied by a headshake and (ii) as a NEGATOR substituting for a verb or verb phrase it is often preceded by a sign for a participant (e.g., a pronoun pointing sign) thus:

(89)



In Auslan, strong naysaying or denial is often made by the sign with the ID-gloss NO (which is usually a verb meaning 'to say no' or 'to deny'), used as an interactive sign, as in:

(90)

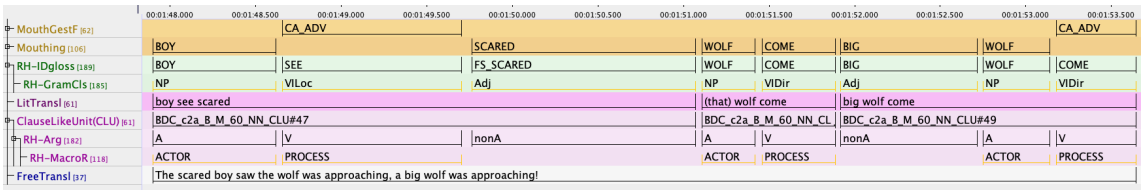


4.2.1.1.2 The macro-role of argument tier

Macro-role tags label the role the verbs and arguments play in the clause in the broadest possible sense, e.g., *process, complement, relation,* or *aspect* for verbs; *actor, undergoer, carrier,* or *attribute* for arguments (see Table 23 for an explanation). Non-arguments are not tagged on this tier (they will be when phrase structure analysis is initiated). These and the other major categories of macro-roles are exemplified in examples (91) to (100).

Examples of verb macro-role annotation (PROCESS, COMPLEMENT, RELATION, ASPECT):

(91) PROCESS



(92) COMPLEMENT

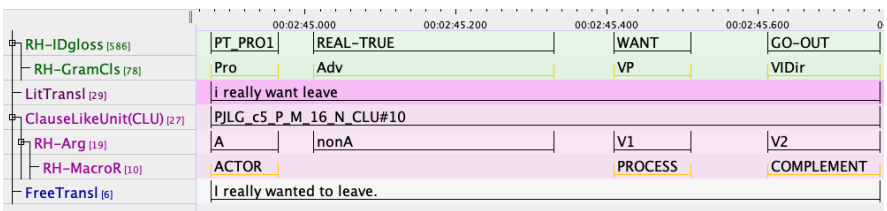
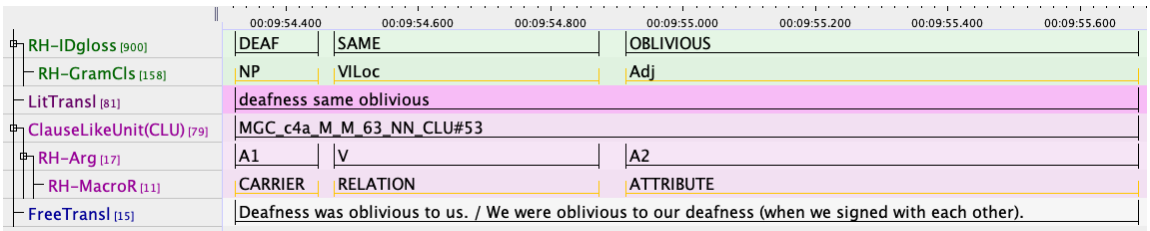


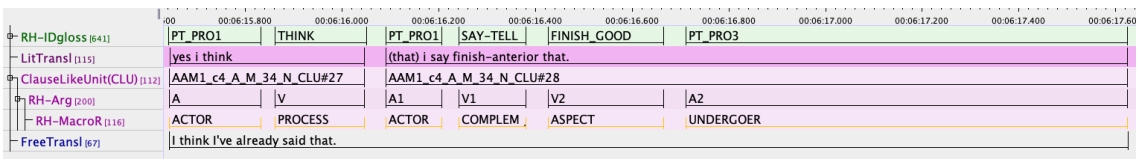
Table 23 The CV for macro-roles tier

Macro-role tier tag*	Explanation
V (Verb)	
PROCESS	A process of some kind that is named by a verb.
COMPLEMENT	Verbs that appear next to (almost always immediately after) another verb and the sequence forms the verbal core of one CLU. These are not serial verbs (one complex or unified action), rather the complement verb completes the main verb, i.e., they are verbal arguments, e.g., WANT GO, or TRY STOP, etc. Note that if the complement verb is itself part of a CLU-type unit, i.e., has its own core argument(s), then the material after the first verb is annotated as a separate CLU and tagged on other tiers as being embedded as an argument of the first verb of the matrix clause.
RELATION	A linking verb that express the equivalence or resemblance of two things, the change of state of an entity, or coming into being of an entity, e.g., HAVE, LOOK, SEE, SAME, BECOME, ABOUT.
ASPECT	Verbs that appear next to another main verb and the sequence forms the verbal core of one CLU. These are not serial verbs (one complex or unified action) or verbal complements, rather the aspect verb modifies the main verb, e.g., START LEARN, STOP SWIM, FINISH EAT, etc.
A (Argument)	
ACTOR	An actor-like argument of the verb, i.e., the entity that does something with a high degree of control or intentionality.
UNDERGOER	A non-actor-like core argument of a verb, such as a patient, beneficiary (recipient), verbiage (something said, or thought, which is attributed to someone) or enactment (acting out something said to be done by someone). However, an UNDERGOER is often the best tag for the single argument of an intransitive verb that has no actor-like qualities. It is simply involved in the action in some ways such as the experiencer of a sensation or state, or something that is said to exist (somewhere). Some adjunct-like elements in Auslan (esp. LOCATION and INSTRUMENT) sometimes warrant being given argument status, especially nominals that 'name' the end point of verbs of motion. However, if introduced by a preposition in Auslan they are usually treated as English-like adjuncts and coded nonA rather than arguments. There appear to be no sequential (slot allocation), or morphological or prepositional markings that flag core arguments in Auslan: core or non-core argument status appears not be strongly syntacticized.
CARRIER	One of two arguments that are juxtaposed and form a CLU, i.e., not a phrase. They represent propositions or predications in themselves, rather than being part of a larger predication. Usually no verb links the two. The carrier appears to be the thing about which the attribute adds further information.
ATTRIBUTE	One of two arguments that are juxtaposed and form a CLU, i.e., not a phrase. They represent propositions or predications in themselves, rather than being part of a larger predication. Usually no verb links the two. The attribute appears to add information about the carrier.
nonA (non-Argument)	
N/A	N/A
Notes	
* LH-MacroR with { }	i.e., all roles where LH is distinct are written with surrounding curly brackets, thus: {ACTOR}
* CA-MacroR with [ ]	i.e., all roles where CA alone shows constituent are written with surrounding curly brackets, thus: [ACTOR]

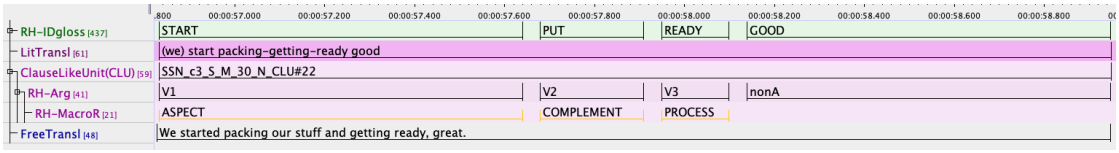
(93) RELATION



(94) ASPECT

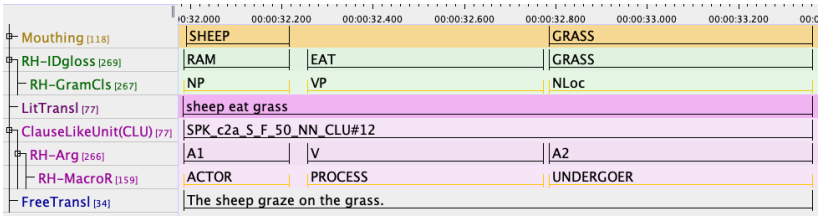


(95) ASPECT

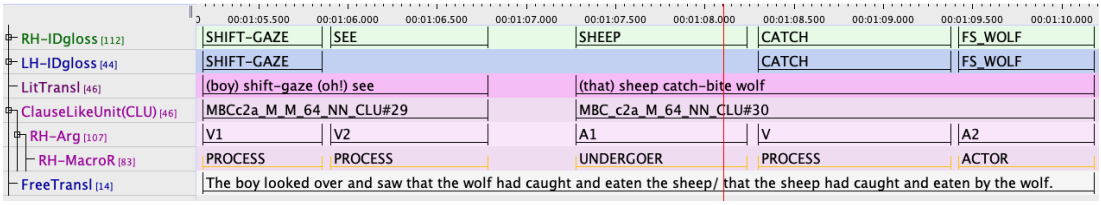


Examples of argument macro-role annotation (ACTOR, UNDERGOER, CARRIER, ATTRIBUTE):

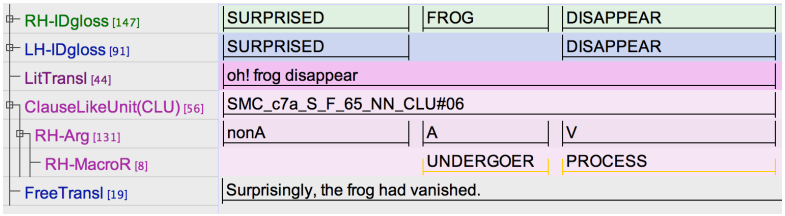
(96) ACTOR & UNDERGOER



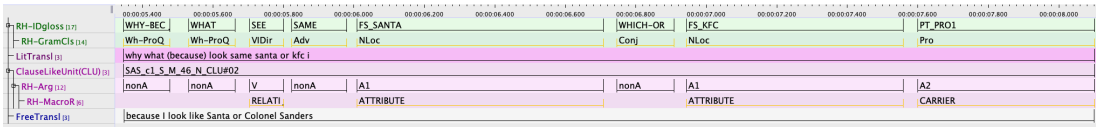
(97) UNDERGOER & ACTOR (CLU#30)



(98) UNDERGOER

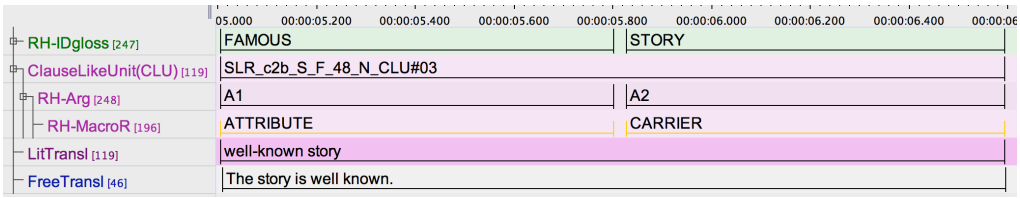


(99) ATTRIBUTE & CARRIER



Verbless attributive clauses also occur in Auslan. The CARRIER (or identified) and the ATTRIBUTE (or identifier) are simply juxtaposed without a linking verb. This is unlike English where they are linked with a verb: X *is* Y, X *seems* Y, X *looks* Y, X *has* Y. The first form, linked by a form of the verb *to be*, does not exist in Auslan because it has no verb *to be*. However, a number of verb signs, such as HAVE, LOOK, SEE, MEAN, etc., can be used as linking verbs, as in (99). (100) is an example of a verbless attributive clause:

(100) ATTRIBUTE & CARRIER



The lack of an overt linking verb in many attributive constructions means that it is sometimes difficult to distinguish between a juxtaposition which is a clause, as found in (100), and a noun phrase in which one element is adjectival and the phrase itself is a constituent of a clause (as in "*The well-known story* is called "The hare and the tortoise"). The proposed attributive CLU must appear to stand-alone as an utterance unit (proposition) rather than be a smoothly incorporated element of a large unit which is the real proposition.

4.2.1.1.3 The semantic role of argument tier

There is no definitive categorization of semantic roles. Semantic roles are divided up and labelled in different schemas and terminologies by different linguists with the result that many of the categories overlap. The number of roles range from just a few, such as *Source, Location, Goal*, to potentially extremely large lists in which specific semantic roles are assigned for each verb, such as *lover/lovee* of the verb *love*.

Given that there is no definitive categorization of semantic roles, we have opted for a modest but flexible inventory. These may be added to at any time. As it currently stands, the semantic roles linked to macro-roles are as listed in Table 24. (Once again non-arguments are not tagged on this tier.)

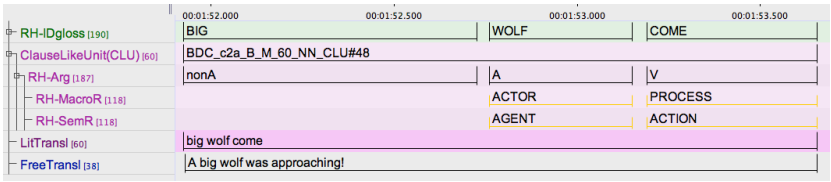
Several semantic role categories for verbs and arguments are novel: ENACTMENT (for verbs); UTTERER (for actor-like arguments); and UTTERANCE and EXISTENT (or undergoer-like arguments). ENACTMENT, UTTERER and UTTERANCE are used to capture the frequent "imitating" constructions called 'constructed dialogue' and 'constructed action', so that these types of constructions can be aggregated and compared to other constructions (discussed in §3.3.3.)

An ENACTMENT is a verb-like sign that expresses an action by acting it out through a enactment, gesture or a depicting sign, rather than by naming it with a lexical sign. (Refer to the discussion of gestures and depicting signs in §3.2.6.2 and §3.2.7). Most enactments have not yet been explicitly distinguished in the annotations but they can still be identified as an overlap of a VERB with semantic role ACTION and an ID-gloss for a gesture or a depicting sign. An UTTERER describes an argument which is identified as the participant who words or signs are quoted in a stretch of constructed dialogue (see §3.3.3). An UTTERANCE describes an argument which is identified as the words or signs quoted in a stretch of constructed dialogue (see §3.3.3).

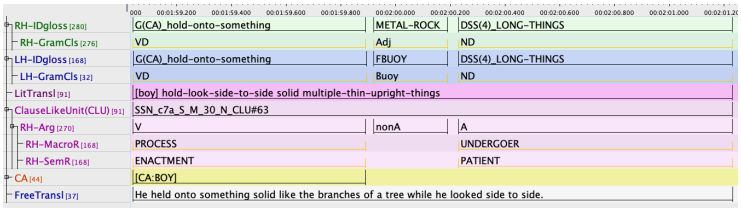
Finally, existential clause constructions in Auslan require the identification of an EXISTENT role. An EXISTENT is an argument in these constructions whose simple existence is asserted, or whose existence in a particular location is asserted. The constructions often use the verb HAVE. These and the other major categories of semantic roles are exemplified in examples (101) to (119).

Examples of PROCESS-like verbs with the finer semantic role categorizations of ACTION and ENACTMENT:

(101) ACTION

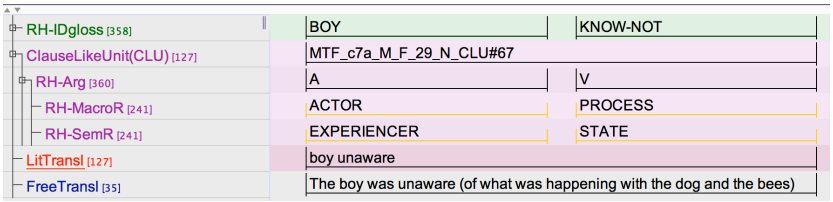


(102) ENACTMENT

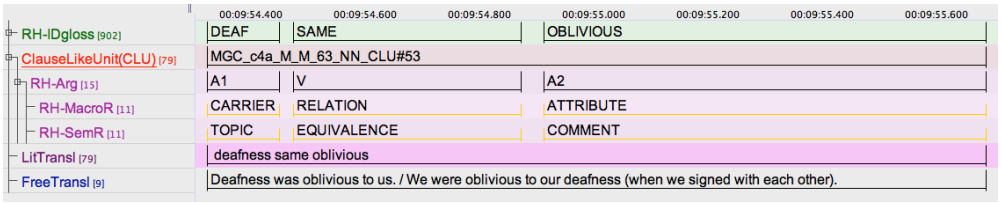


Examples of RELATION-like verbs with the finer semantic role categorization of STATE and EQUIVALENCE:

(103) STATE

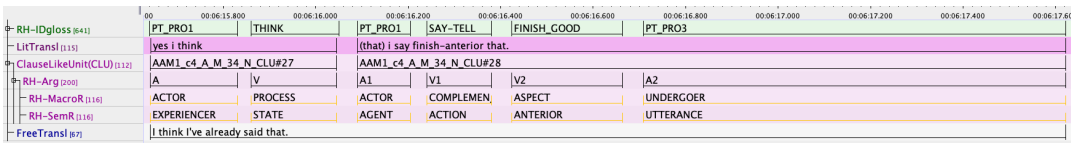


(104) EQIVALENCE



Examples of ASPECT verbs with the finer semantic role categorization of ANTERIOR, COMPLETIVE and INCEPTIVE:

(105) ANTERIOR



(106) COMPLETIVE

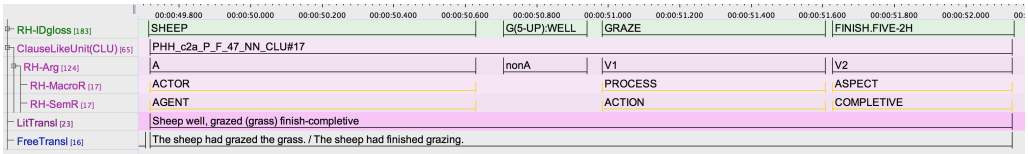
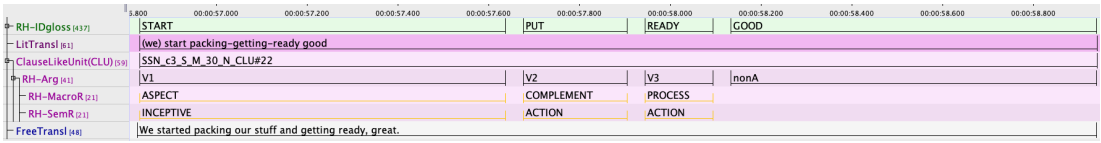


Table 24 The CV for semantic-roles tier

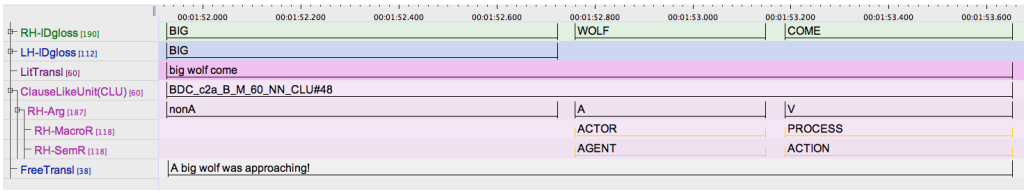
Semantic-role tier tag*	Explanation
VERBS	
PROCESSES	**(Aktionsart categories: activity-like, achievement-like, accomplishment-like)**
ACTION	verb that names an activity with a lexical sign
ENACTMENT	verb-slot that expresses an action, not by naming it, but by acting it out
RELATIONS	**(Aktionsart category: state-like)**
STATE	verb that predicates an attribute or condition of something which is in principle non-inherent in the nature of that thing, often it describes a state or asserts the existence of something
EQUIVALENCE	verb that equates two things as the same, often it describes a state
ASPECT	
ANTERIOR	verb that marks the action of a contiguous complement verb as having happened before the time of speaking (or some other reference time) yet being of relevance to the time of speaking (or that other reference time)
COMPLETIVE	verb that marks the action of a contiguous complement verb as being completed
INCEPTIVE	verb that marks the action of a contiguous complement verb as being about to happen or interrupted before being completed
ACTOR-like	
AGENT	instigator of some action, action is under agent's volitional control, including agent (*enactor*) who performs an enactment (when aligned with CA or when CA occurs contiguously to named actor/enactor in same CLU) or agent who says (*utterer*) a quoted utterance (or merely 'thinks' it attributively or metaphorically (*thinker*) (when aligned with CD or when CD occurs contiguously to a named utterer/thinker in same CLU).
UTTERER	entity who says/signs an utterance (CD) or who acts-out an enactment (CA)
EXPERIENCER	entity experiencing some psychological or physiological state
SOURCE	entity from which something moves or a sensation emanates
UNDERGOER-like	
PATIENT	entity undergoing the effect of some action (aka 'theme')
EXISTENT	entity which is said to exist (somewhere)
UTTERANCE	a non-actor argument which is verbiage (things said/signed, constructed dialogue) VERBIAGE
GOAL	entity towards which something moves or the thing or aim to which an action is directed
BENEFICIARY	entity benefitting from some action (aka 'benefactive') or receiving some entity by transfer ('recipient' or 'indirect object')
CARRIERS-like	
TOPIC	argument about which a comment is made
GROUND	argument which functions as the ground or reference point with respect to which a figure is located/placed
ATTRIBUTE-like	
COMMENT	argument that says something about a topic
FIGURE	argument which is spatially located with reference to another argument, usually literally but also metaphorically
PERIPHERAL (ADJUNCT) ELEMENTS**	
LOCATION	place in which something is situated (aka 'locative')
INSTRUMENT	means by which something comes about
MANNER	way in which something is done
PATH	route in which something moves
TIME	time in which an action takes place
ACCOMPANIMENT	entity which accompanies another argument
Notes	
*	Non-arguments (peripheral or adjunct elements) have not yet been given semantic role tagging in the corpus. To date they have simply been tagged as ***nonA***.
LH-SemR with { }	i.e., all roles where LH is distinct are written with surrounding curly brackets, thus: {ACTOR}
CA-SemR with [ ]	i.e., all roles where CA alone shows constituent are written with surrounding square brackets, thus: [ACTOR]

(107) INCEPTIVE

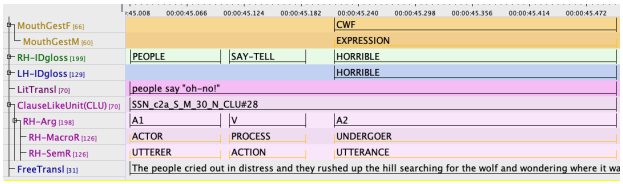


Examples of ACTOR-like participants with the finer semantic role categorizations of AGENT, UTTERER, EXPERIENCER, and SOURCE:

(108) AGENT

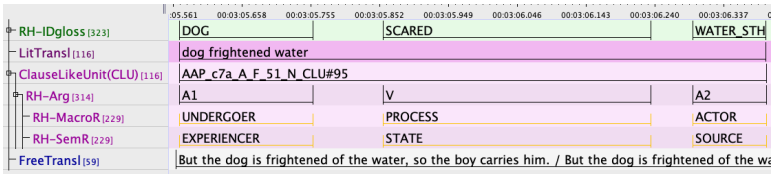


(109) UTTERER



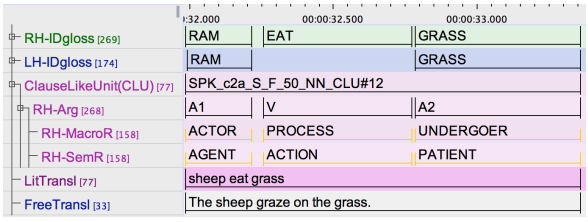
See example (103) for EXPERIENCER.

(110) SOURCE

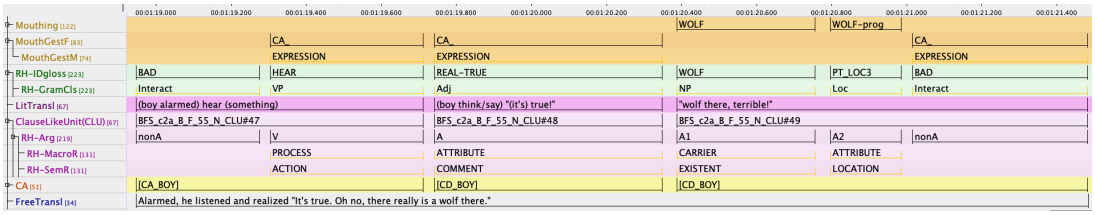


Examples of UNDERGOER-like participant with the finer semantic role categorizations of PATIENT, EXISTENT, UTTERANCE, GOAL, and BENEFICIARY:

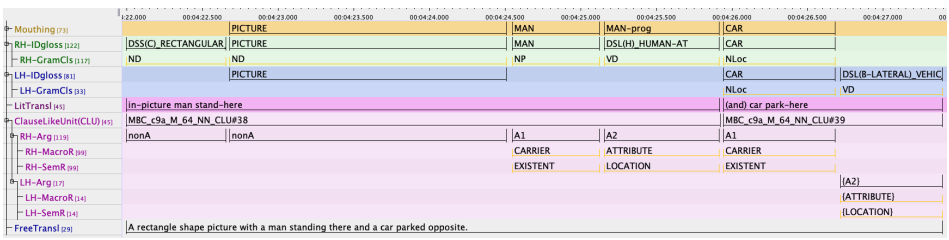
(111) PATIENT



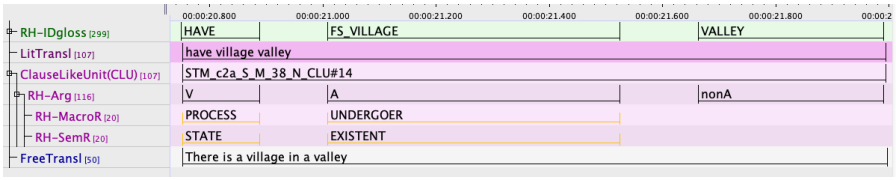
(112) EXISTENT (ENTITY-named^ENTITY-located) in CLU#49



(113) EXISTENT (ENTITY-named^LOCATION-identified)



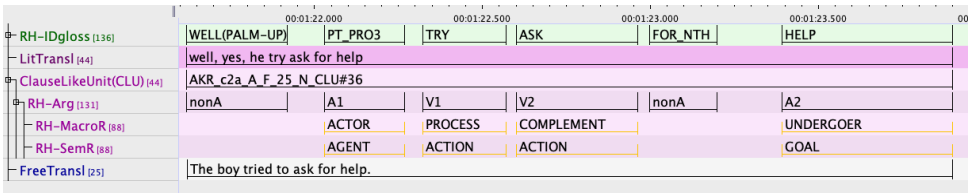
(114) EXISTENT (HAVE^ENTITY-named)



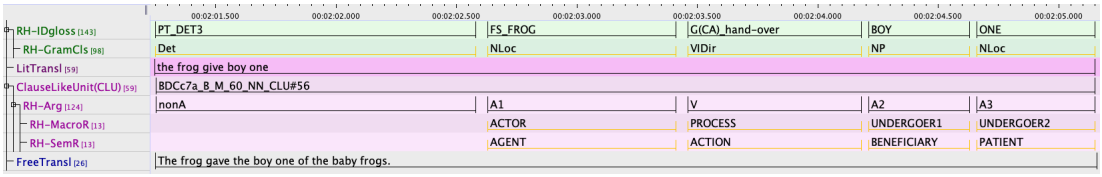
See example (109) for an example of an UTTERANCE. (This example of UTTERER and UTTERANCE illustrates a simple one word utterance which is not, in itself, a separate CLU, i.e., the utterance is not an embedded clause. For the annotation of embedded CLUs in constructed dialogue see §4.2.2.5 which deals with the annotation of relationships between clauses.)

(115) GOAL

(116) GOAL

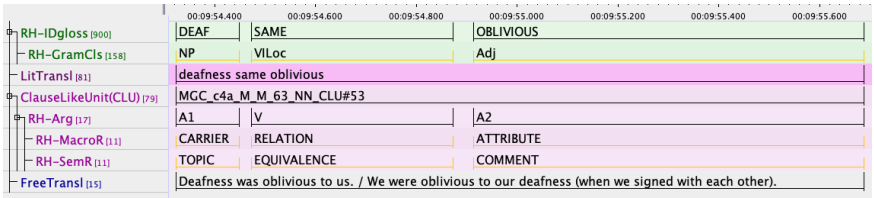


(117) BENEFICIARY

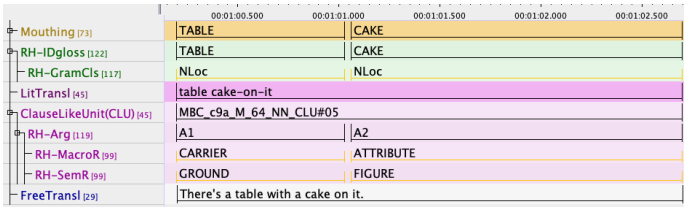


Examples of CARRIER and ATTRIBUTE constituents with the finer semantic role categorizations of TOPIC, GROUND, COMMENT, and FIGURE:

(118) TOPIC & COMMENT



(119) GROUND & FIGURE



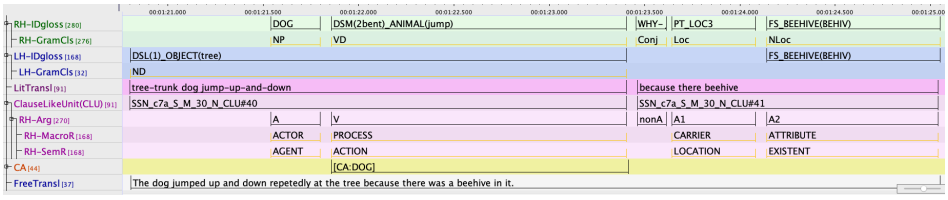
4.2.1.1.4 The status of location

The peripheral roles in Table 24 (LOCATION, INSTRUMENT, MANNER, PATH, TIME, ACCOMPANIMENT) express circumstantial meanings which modify the process involving the verb and its core arguments. They tend not to be realized cross-linguistically as overt core arguments but as lexical verb modifiers (adverbs), or as adjuncts or obliques (adpositional phrases or as affixes on nouns). In the Auslan Corpus, adverbs, adverbial phrases and adpositional phrases, when they occur, are similarly non-arguments and are tagged nonA and thus are not tagged further for macro or semantic roles. (This is represented by dashed lines in Figure 8.)

Furthermore, in Auslan and other SLs, these circumstantial meanings often do not occur as separate overt adverbs or adjuncts; rather, they are often expressed as features or modifications of core constituent signs, i.e., verbs and nominal arguments. For example, a verb sign can be placed in the signing space and, if it has a path movement, then the actual path can be also modified meanings (including the beginning and end points) to **show** these meanings; and a noun sign can be placed in the signing space above, below, next to or far from a second located noun sign to **show** relative location of both entities. So, once again, there is no opportunity to use these peripheral semantic role tags in these constructions.

Nonetheless, on occasion it has appeared desirable to code some overt signs as core arguments with the semantic role LOCATION because they do not appear to be peripheral modifications to the core meaning of the clause. For example, in some verbless existential constructions that assert the existence of an entity at a location, the location appears to have core, rather than circumstantial weight:

(120)



4.2.1.2 Covert clausal constituents and arguments

4.2.1.2.1 Covert arguments in depicting signs

Depicting signs can function primarily as verbs or nouns. Some complex depictions function as CLUs in their own right. Arguments can find expression in the handshapes and locations

used on the dominant and subordinate hands. For a single complex stand-alone depictions like these, we simply use the clause argument tag *V*, for verb. (In other words, we consider the 'incorporated' elements to be akin to the incorporated arguments of indicating verbs. Further detail annotation of these signs would occur on the same tiers described for the indicating verbs.)

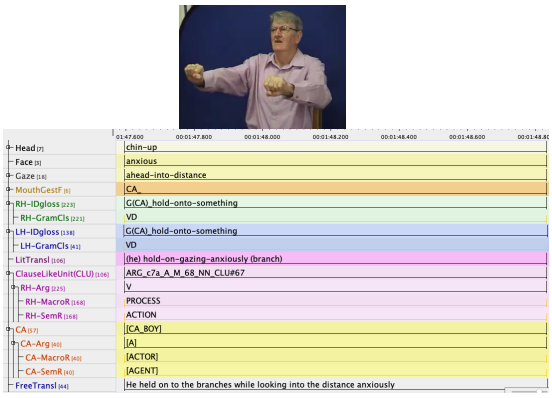
4.2.1.2.2 Covert arguments during CA

During full CA and sometimes during reduced CA it is helpful, for the purposes of the analysis of constituent order and argument structure in Auslan clauses, to identify the covert argument or process that is expressed in the CA itself. Otherwise, there is a risk one may mistake the lack of an overt manual sign for an argument or a process for its complete absence when, in reality, it has simply been expressed through enactment (**showing**) rather than in conventional signs (**telling**).

4.2.1.2.2.1 Full CA argument

Recall from §3.3.3.1.1.3 that ***full CA*** involves the signer being fully engaged in acting out something using the arms and hands, i.e. manual gestures, as well as the torso, head, and face as a whole or parts thereof (eyebrows, nose, eyes, gaze, and mouth).

(121)



The manual part of an over CA is captured on the RH and LH glossing tiers with a gloss in the form of *G(CA)_description-of-enactment* and an annotation field on the CA tier, as in (121).

If other non-manuals are involved in the enactment, they are annotated on the appropriate tiers, and their contribution to the meaning of the enactment is expressed in the translation tiers. Overall, the annotation on the ID-gloss tier acts as a placeholder for the enactment as a whole as a core process (V) in the CLU.

In (121) the signer enacts a boy holding onto what he thinks are the branches of a bush and looks ahead imitating the boy's searching gaze and anxious expression. The signer is literally doing something rather than producing conventional lexical or symbolic indexical signs of the language, i.e., the signer is **showing** the action to the addressee, rather than **telling** them what some entity is doing. There are no other signs in this CLU which

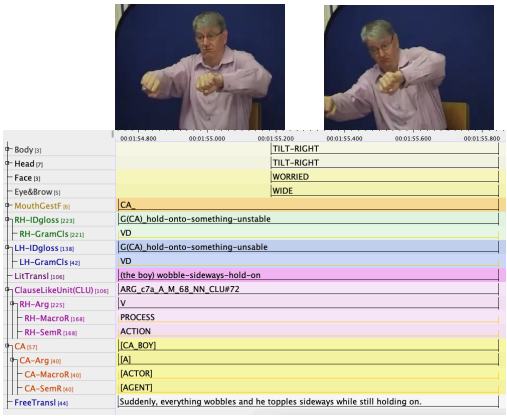
might otherwise identify the actor, however it is moot whether the actor argument has been completely omitted in this type of CLU. After all, the addressee has to 'see' or 'read' the movements and expressions of the signer *as an enactment* in order to interpret it correctly.

To underline this fact we add on the CA and its daughter tiers tags for the invoked actor argument. In (121) the CA argument tier codes for the participant (the boy, as A) because the gazing and the anxious look are clear expressions of the boy (not the signer).

Note that the CA annotations on the CA-related tiers are enclosed in square brackets to distinguish them from argument annotations on the RH-related tiers which have no brackets and the LH-related tiers which have curly brackets. This convention allows searches and filters of CLU argument annotations to distinguish those arguments that are omitted but invoked through rich full CA.

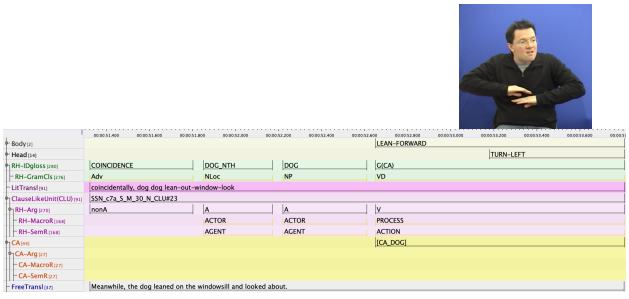
After the previous example, in the same text, the signer produces an ever richer enactment that also involves the whole upper body, see (122). The full CA is one complex action, i.e., he is holding on while toppling sideways:

(122)



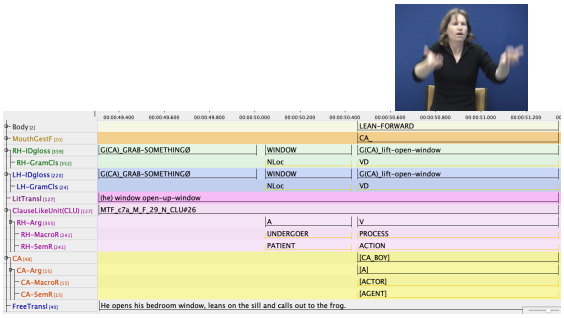
A full CA can occur in a CLU in which there are one or more manual lexical or partly-lexical signs that name or help identify the participant(s) or process(es) involved in the CA. In these CLUs, no argument annotations are separately added for participants or processes expressed in the CA itself because they are elsewhere annotated on the argument, macro-role and semantic role tiers for those overt participants and processes, as in (123). These two annotation practices distinguish full CA-only CLUs from those full CAs in CLUs in which a participant or adjunct is elsewhere identified with a manual sign or signs.

(123)



In some CLUs with a full CA one core participant may be manually identified and another only invoked in the CA. In (124) there are two As (the sign WINDOW, the undergoer) and the invoked boy (the signer as actor in the CA). Notice that the actor A on the CA argument tier is not numbered relative to the undergoer A on the ID-gloss tier. Rather, the sign WINDOW is tagged A (not A1) and the invoked boy is also tagged A (not A2).

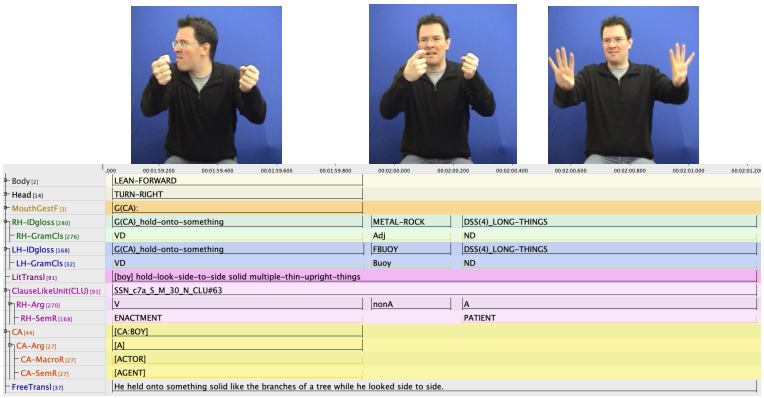
(124)



This is done to maintain the integrity of the annotation conventions for manual signs and gestures on the RH and LH annotation tiers—they are numbered in order of their appearance in the CLU. As explained in §4.2.1.1, the purpose of the numbering convention is to identify the order of overt manually signed constituents in clauses and sentences in Auslan. The gesture-like manual component of a full CA appears as a manual constituent of the clause in the annotation (and would be numbered if another process was manually identified in the CLU), but the invoked participant(s) is not overt in the sense of being expressed with a manual sign also. This way the RH and LH annotations continue to clearly show if there is or is not an omitted manually named or identified participant argument in the clause (with due consideration of the transitivity of the process). The CA annotations can be separately considered during analysis to determine if there is any interaction with omission of arguments in the CLU due to the presence of CA.

Another example of CA in a multi-sign CLU is (125). The CLU has three signs: the first is an enactment of a boy holding onto what he thinks are branches, while he looks side to side. It is aligned with a period of full CA on the CA tier, so the actor argument is annotated. It is followed by a single lexical sign (SOLID) and a partly-conventional depicting sign (DSS(4)_MANY-THIN-OBJECT-EXTENDED).

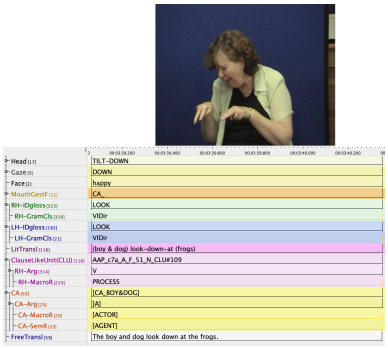
(125)



4.2.1.2.2.2 Reduced CA argument

As explained in §3.3.3.1.1.2, ***reduced*** CA involves the signer producing conventional lexical or symbolic indexical signs to name or depict a process while at the same time richly invoking the actor by using non-manuals to **show** how the action was performed. As with full CA, if no other signs in the CLU name the actor (or indeed if the CLU consists of only the sign for the process co-occurring the period of reduced CA) we add on the CA and its daughter tiers tags for the invoked actor argument, as in (58) above which is reproduced here as (126):

(126)



A reduced CA may co-occur with a depicting sign that represents an entity involved in a process (as an A or a nonA as the case may be) with no other signs in the CLU. There thus appears to be no discrete segment to annotate as the process in the CLU, yet clearly there is one being enacted. In (127) the process is *leaning forward and peering* expressed entirely by non-manuals. In cases like this, the annotation for the process is added to the CA argument tier. In this particular case, there is a double annotation: one for the invoked actor (the boy) and one for the action (leaning forward and peering). The depicting sign for the hole is a non-core adjunct element of location (a nonA).

(127)

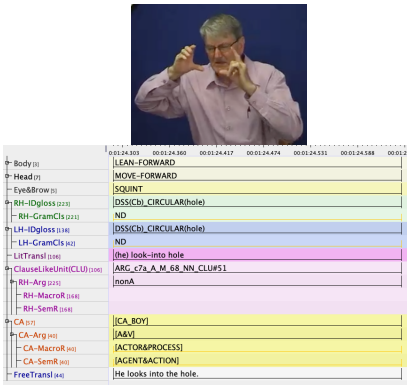


Table 25 Summary of the CV for the Argument tier

Arg-tier tags			Explanation
RH	**LH**	**CA**	
Participants/arguments			
A	{A}	[A]	The single overt argument of a verb, or a covert argument in a CA.
A1	{A1}	n/a	The first expressed argument of a verb when there is more than one.
A2, etc.	{A2}, etc.	n/a	The second or subsequent expressed overt argument of a verb.
nonA	{nonA} etc.	n/a	Any element of a clause that can be regarded as a non-argument.
Processes/verbs			
V	{V}	[V]	The process expressed in the clause (verb), or a covert argument in a CA.
V1	{V1}.	n/a	The first verb in a multi- or complex verb construction.
V2, etc.	{V2}, etc	n/a	The second or subsequent verb in a multi- or complex verb construction.
Unresolved two-way analysis			
Indefinite			A constituent or an entire CLU that can be analysed equally in one of two ways due to the indeterminacy of the grammatical class of core elements.
No convincing constituency			
Indeterminate			A sign or series of sign-like articulations that appears to be one unit but whose meaning is not easily defined and/or resists segmentation into constituents and hence any argument-like analysis.

4.2.1.3 Indeterminate CLUs

In some CLUs no coherent labelling in terms of argument and constituent structure appears possible, e.g., it may be a visual representation, a complex depiction, a rich enactment. These CLUs are labelled as INDETERMINATE on the clause argument tier (selecting the entire time period of the clause as the annotation field). Some other CLUs also appear to have no identifiable structure in terms of verbs and arguments, e.g., they may be formulaic expressions such as salutations. These, are labelled as FRAGMENTS.

4.2.1.4 Indefinite CLUs

Some CLUs can be analysed in two ways, with each appearing equally plausible. When it appears impossible to make a decision one way or another but one does not wish to imply or claim that the CLU is actually indeterminate in structure (as just described above), the label indefinite is applied to the core constituents or to the CLU (once again on the argument tier, selecting the entire time period of the clause as the annotation field in the latter case). For example, if two core constituents of a CLU (or the CLU itself) were tagged ‘indefinite’ this could mean that the two elements can be analysed as a A1 A2 sequence (assuming both are nominals of some kind), a V A sequence, or an A V sequence (assume one is nominal and the other verbal). There appears to be no reason for preferring one analysis over

another, even when taking into account the CLUs immediately before and after the problematic CLU.

These INDEFINITE CLUs may be revisited at a later pass of the text. An assignment may be able to be given then, in the light of other similar examples, or they may remain INDEFINITE (essentially examples of structural/syntactic 'ambiguity', or better 'under specification', in the language).

4.2.2 Clause unit level annotation and tagging[34]

Clause level annotations focus on the clause itself as a single unit or the relationship of the clause to the clause or clauses that precede or follow it. The tiers used to annotate these clause level features are shown in Table 26.

Table 26 The tiers that related CLUs to each other

Parent tier ↳ Child tier	Expanded name/explanation	Linguistic type
ClauseLikeUnit(CLU)	**Clause-like unit ('utterance/meaning unit')**	**BasicAnnotation**
LitTransl	Literal translation	BasicAnnotation
CLUmood	Mood	BasicAnnotation
EventTypeCLU	Event type or Aktionsart	BasicAnnotation
CLUtransitivity	Transitivity type	BasicAnnotation
CLUwithinCLU	Complement and embedded CLUs	BasicAnnotation
↳ OvertEmbeddedType	Nature of expression of embeddedness	BasicTag
CLUcomplex	CLUs overtly related to each other	BasicAnnotation
↳ OvertDependencyType	Nature of expression of dependency	BasicTag
CLUcomposite	Sentence complexity	BasicAnnotation

4.2.2.1 The literal translation tier

The literal translation is an annotation aligned to the entire clause, rather than individual signs, and tries to capture what is conveyed explicitly by the overt manual signs clause by clause. It also attempts to show what is expressed explicitly in the choice of signs and in the way they are produced, on the one hand, and what is expressed implicitly, is elided, or has to be inferred, on the other hand. Consequently, the literal translation is often not grammatically correct English, e.g., tense markers are omitted and determiners are only written if an equivalent is expressed in the manual signing. (In Auslan, there are no tense markers and determiners are often not expressed.)

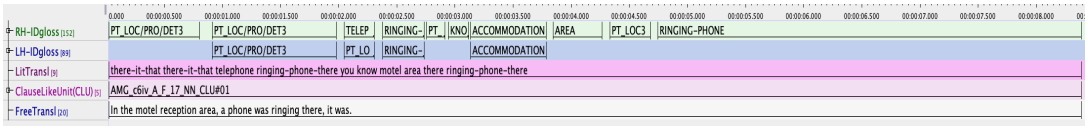
The literal translations are always written in lower case letters without initial capitalisation and without a full-stop at the end to help remind the reader that they are not 'proper' written English sentences.

There are no fixed rules for how the literal translation must be done because annotators often feel a need to be somewhat creative to best capture in a short linear text what is going on. Nonetheless the general practice is that signs that express complex meanings are usually written with more than one word so as to capture the sense of the manual sign. The multiple words are joined by hyphens to show they are all part of one sign, as in (102), (105),

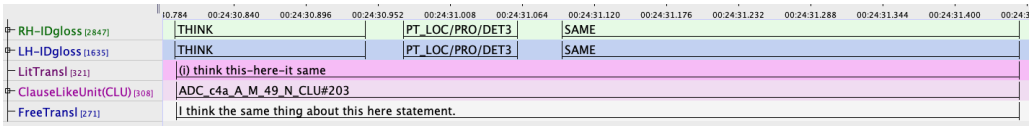
[34] Adapted from a schema first developed and trialed by Gabrielle Hodge as part of her doctoral research on clause combining in Auslan (Hodge, 2013), supervised by Trevor Johnston.

(107), (109), and (119). Pointing signs with multiple functions are a good example of this practice:

(128)



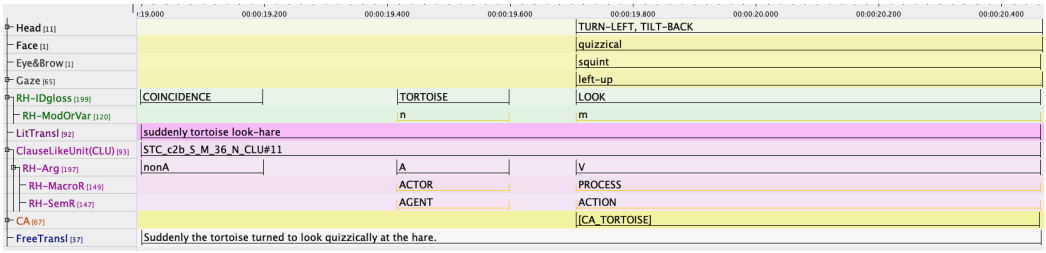
(129)



One can also see from (129) that understood or omitted arguments are usually put in parentheses on the literal translation tier.

Arguments that are associated with locations in the signing space and which find expression in the orientation or direction changes of overt manual indicating signs are added before or after hyphens for the word in the literal translation associated with the modified sign:

(130)

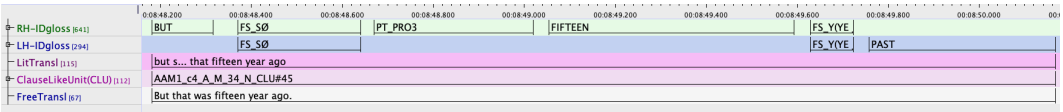


Understood or omitted arguments are usually put in parentheses on the literal translation tier.

One can also see from these examples that it is not just the wording of the literal translation that helps the reader appreciate what is expressed through the signers choice of lexical item and possible spatial and directional modifications of lexical items, it is also the comparison of the literal translation with the free translation which is informative. Meanings expressed through other features of sign delivery—such as body stance and posture, eye gaze and facial expression, all of which are annotated on other tiers—become evident on the free translation tier. In (130) the turning of the tortoise's head up and towards the hare and his quizzical facial expression is only expressed in the free translation.

The relationship of the particular CLU to another CLU is always evident in the literal translation if this is overtly expressed in the manual lexis, e.g., with signs like PRETEND, BECAUSE, BUT, etc., as in examples (50) and (52) above, and (131) following:

(131)



However, many logical or temporal relationships between ideas or events (and thus clauses) often need to be inferred by the interlocutor in Auslan because they are often not explicitly coded using lexical or grammatical markers. For such clauses the literal translation shows that there is an implied relationship, which the interlocutor needs to infer, by placing the English words that would be used to express that relationship in parentheses. These types of literal translations are discussed and exemplified in the discussion of the annotation of the relationships between clauses (see §4.2.2.5).

4.2.2.2 The mood tier[35]

Mood annotation identifies sentence or clause type as declarative, interrogative, and imperative. Two minor types are also identified but they are primarily reserved for fragments: interactive and exclamation. Sub-types of some of these are also identified (Table 27).

Table 27 The controlled vocabulary (CV) for mood tags

Mood tag	Sub-category tag
Declarative	
	Declarative with topic
	Declarative(apodosis)
	Declarative(protasis)
Interrogative	
	Interrogative with topic
Imperative	
	Imperative with topic
Interactive	
Exclamation	

These annotations make it possible to quantify the characteristics of each clause type to assist in grammatical analysis. For example, declaratives may be aggregated to compare their sign order with that of interrogatives, or to compare their overtly expressed arguments with that of imperatives. One aspect of the grammar of Auslan and other SLs which appears particularly salient for grammatical organization is the role of non-manuals, e.g., with respect to question formation, conditional sentences, and topicalization. The mood tagging adopted here is intended to assist in determining which non-manuals are rare, typical or obligatory with each type or sub-type and their precise function (or, indeed, if a general macro-function can explain their presence across sentence types).

4.2.2.3 The event type (Aktionsart) tier

This tier tags the overall meaning of the CLU in terms of the types of event they instantiate (STATES, ACTIVITIES, ACCOMPLISHMENTS, ACHIEVEMENTS) as summarized in the following table.

[35] This tier is called CLUCompositeSentenceType in some older annotation files.

Table 28 Akionsart tags and their semantic features

STATES	ACTIVITIES	ACCOMPLISHMENTS	ACHIEVEMENTS
Stative	Dynamic	Dynamic	Dynamic
Durative	Durative	Durative	Punctual
Atelic	Atelic	Telic	Telic

By identifying clauses as States, Activities, Accomplishments or Achievements we can quantify how the occurrence of some linguistic variable, such as the use of the type of auxiliary that expresses perfective aspect, correlates with the semantics of the modified verb (i.e., the clause). These data can help determine if the distributional facts are driven primarily by semantics or reflect the existence of an obligatory grammatical coding device. An implementation of this type of tagging was used in Johnston et al (2015).

4.2.2.4 The transitivity tier

This tier tags the overall meaning of processes expressed by the verb in a clause in terms of its inherent participants: one (intransitive), two (transitive), three (ditranstive). Attributive clauses, which do not require a verb at all because one cannot say a verb has been elided, are also given a distinctive annotation tag on this tier.

By identifying clauses by process type we can correctly quantify when arguments are omitted or elided. For instance, a VA or AV pattern in a transitive CLU has at least one elided argument, whereas a VA or AV pattern in an intransitive CLU has no elided arguments. We are also then in a position to determine if the order of verbs and arguments (or modifications, when present, to the form of the verb) correlates with the alignment of macro-roles, and semantic roles. This would provide evidence (or lack of evidence) of syntactic relations in the language (Johnston, 2019). We are also then in a position to determine if the lack of an overtly expressed argument correlates with overt verb morphology or syntactic relations.

Finally, as with the mood tier, clauses that appear to have a 'topic-like' constituent are identified, in order to help determine in later grammatical analysis if any particular constituent order could be considered 'marked' or 'topical' and/or if any particular non-manual feature preferentially or obligatorily co-occur with topic-like constituents.

Table 29 Transitivity tags

Type tag	Sub-type tag	Explanation
t		Transitive clause with two (or three) inherent participants
	top_t	Transitive clause with a topic-like argument
i		Intransitive clause with only one inherent participant
	top_t	Intransitive clause with a topic-like argument
a_a		Verbless attributive clause with only two participants or one participant and one quality-like sign juxtaposed
	top_a_a	Verbless attributive clause with a topic like argument
_a_		Verbless attributive clause with topic/carrier understood
ø		A fragment which is not a clause

Note 14: Transitivity

A note on transitivity In English, some verbs may be used transitively or intransitively, such as *eat* in *He ate a cake* and *He's very healthy because he eats well*. Similarly, in Auslan some verb signs can be used both ways: PRO3SG LOOK WOLF *He looked at/watched/saw the wolf* and PRO3SG LOOK *He looked around*. One always needs to consider at how a particular verb is used in context to make a judgement as to whether that meaning normally implies two arguments (or even three). If it does it is transitive and the fact that one or more arguments may actually be absent does not render the verb intransitive — they are merely elided.

4.2.2.4.1 The overt subject tier

This now discontinued tier was used in a study to tag on the verb in a CLU for the presence or absence, in the same CLU, of an overt manual sign which expressed a 'subject-like' argument (McKee, Schembri, McKee, & Johnston, 2011). This information assisted in determining if the lack of an overtly expressed subject-like argument correlated with the presence or absence of particular linguistic factors.

Table 30 The CV for overt subject

Tag	Expansion	Explanation
y	yes	Yes, overt 'subject' present and it is a pronoun
c	yes, common noun	Yes, overt 'subject' present and it is a common noun
p	yes, proper noun	Yes, overt 'subject' present and it is a proper noun
n	no	No, overt 'subject' not present
n/a	not applicable	Tagged to a non-argument to show that it has been considered rather than accidentally omitted

However, with the implementation of clause constituent argument tagging as just outlined, and clause Akionsart and transitivity tagging (explained in §4.2.2), determining if the lack of an overtly expressed subject-like argument correlates with verb morphology, position in clause, and constructed action (i.e., without assuming the grammatical relation 'subject') is now possible by using multi-tier searches for overlaps of these types of tags (Johnston, 2019)

Note 15: Absent arguments

In Auslan, arguments are often not expressed overtly — they are elided (omitted or 'dropped') and are understood from context. Indeed, many CLUs consist only of a transitive or intransitive verb sign. However, even though a transitive verb may have only one overtly expressed argument in its CLU, or an intransitive verb have no overt argument, the argument may still be covertly expressed. Covert expression can be manifested in simultaneous constructed action, verb modification in terms of space (location and/or direction in indicating and some depicting signs) or handshape (incorporation of a handshape into some depicting signs). These phenomena can be identified as absent or present in any given CLU by examining the overlapping annotations on tiers dedicated to constructed action, verb modification, or glossing. Importantly, the correlation of these factors in the Auslan Corpus suggest that (i) all forms of covert expression (indicating verbs, depicting signs, and CA) are related by exploiting a 'showing' strategy; and (ii) that omitted arguments need not be covertly expressed in Auslan for CLUs to be well-formed (Johnston, 2019).

4.2.2.5 Clause complexity annotation

Clause complexity annotation identifies the relationship of clauses to each other and identifies the larger composite clauses (or complex sentences) that they form. One type of composite clause consists of two or more clauses which are overtly linked to form a *clause complex,* and another type consists of one clause embedded in another clause which is called

the matrix clause (or matrix sentence) to form a *complex clause*. An embedded clause can be a complement (argument) of a verb in the matrix clause, or it may modify an argument in the matrix clause without itself constituting an argument of the verb in the matrix clause. The linking relationship between two clauses in a clause complex can be paratactic or hypotactic. Parataxis involves the linking of clauses with equal status and is usually marked with an overt manual coordinating conjunction. Hypotaxis involves the linking together to two clauses of unequal status and is usually marked with an overt manual subordinating conjunction.

The following sections describe and exemplify the annotation of these types of clauses. Figure 9 (next page) gives an overview of clause complexity annotation.

4.2.2.5.1 The CLUwithinCLU tier

On the tier named *CLUwithinCLU* one tags if a CLU is a part of (contiguous with or actually within) another larger CLU, i.e., the larger CLU has the smaller CLU as one or part of one of its constituents. The larger CLU may precede, follow or 'surround' the contained CLU. This containment appears to be of two very general types: *complementation* or *modification*. Complementation 'completes' one CLU with another, e.g., the completing CLU is an argument of a verb in the other CLU. Modification adds information about, or specifies in some way, a constituent argument of the main CLU. However, a modifying CLU does not itself alone constitute a core argument of the matrix clause.

The embedded clause is tagged CONTAINED. The material before or after the embedded clause is tagged as PRE-CONTAINED or POST-CONTAINED, as the case may be, and together with the CONTAINED clause, they constitute the MATRIX clause or sentence. The PRE-CONTAINED, CONTAINED and POST-CONTAINED tags were originally used in order to avoid prejudging the nature of the embedded relation at the very beginning of the annotation process because one alternative label (*subordinate clause)* conflates at least two different types of embedded subordination: subordinate complement clauses (embedded), subordinate relative clauses (embedded). Indeed, it also fails to discriminate two types of dependency: coordinate subordinate clauses (paratactic dependency) and dependent subordinate clauses (hypotactic dependency). Not only did we want to keep embedded types separate from dependency types in our tagging, it was also not always clear at first parse which two types of embeddedness an apparently contained clause instantiated. Hence, the use of the more general label CONTAINED for embedded clauses.

The following are examples of embedded complement CLUs and their associated annotations:

(132)

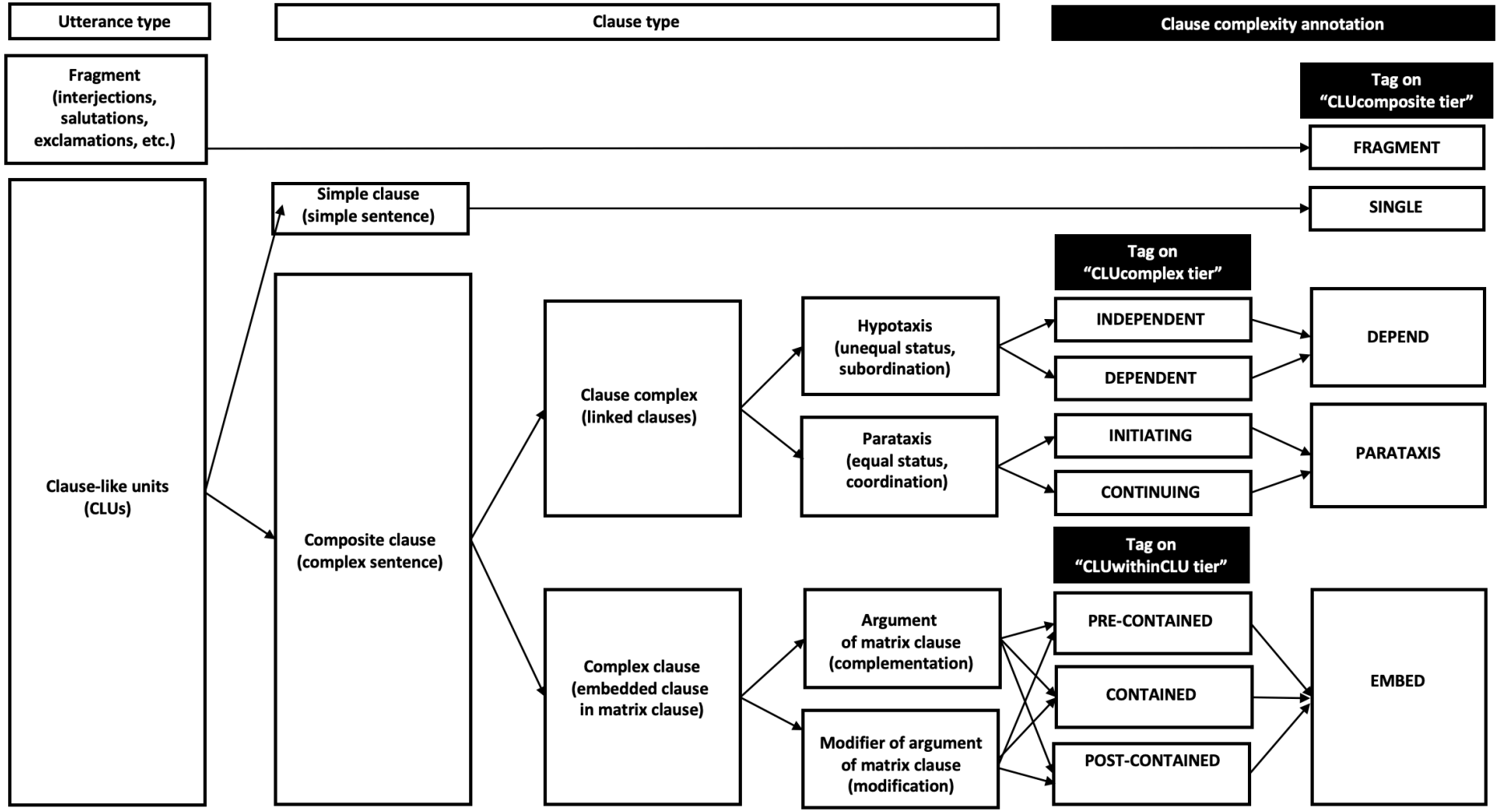
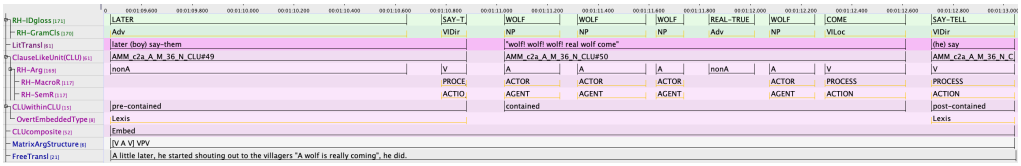


Figure 9 Summary of clause complexity tags

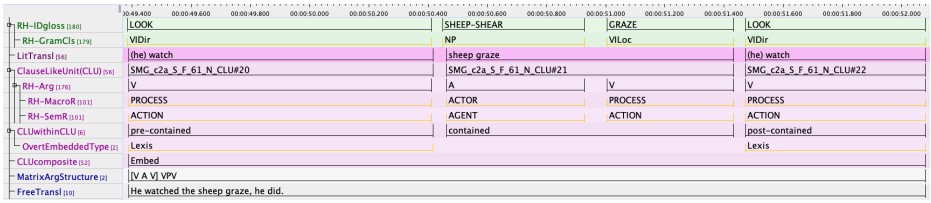
There are two clauses in **Error! Reference source not found.**. One clause is the CONTAINED CLU *"A wolf is attacking the sheep"* and the other clause (or complex sentence) is the matrix sentence which is made up of the PRE-CONTAINED CLU and the CONTAINED CLU: *The boy yelled out "The wolf is attacking the sheep"*. The CONTAINED clause is an argument (complement) of the verb YELL-SCREAM found in the PRE-CONTAINED CLU. The two CLUs could have been inverted *"The wolf is attacking the sheep," the boy yelled out*. In that case, *the boy yelled out* would be labelled the POST-CONTAINED unit.

In the following examples the contained CLU is surrounded by PRE- and POST-CONTAINED material:

(133)



(134)



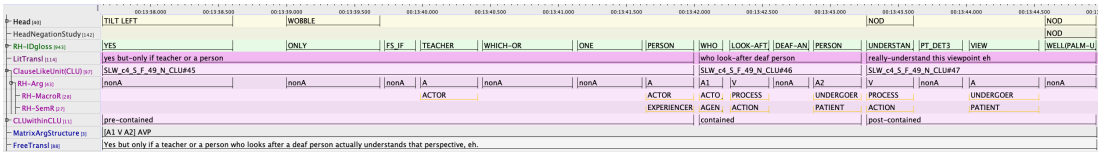
There are two utterances in each of these examples. One is the simple clause in the CLU labelled CONTAINED (written as *"a wolf is really coming"* and *"the sheep graze" on the* FreeTransl tiers) and the other is the matrix clause (complex matrix sentence) which is made up of the PRE-CONTAINED CLU, the CONTAINED CLU and the POST-CONTAINED CLU written as the complete free translations '*A little later, he started shouting out to the villagers "A wolf is really coming", he did'* and *'He watched the sheep graze, he did'*.

As can also be seen from the annotations in (133) and (134), CLU arguments are identified at the 'lowest' level only on the arguments tier, i.e., the two arguments in the CONTAINED CLU are identified as A and V, even though they are also, as a unit, the 'A' of the PRE-CONTAINED and POST-CONTAINED CLUs. These matrix sentence constituents and arguments can be seen annotated separately on the MatrixArgStructure tier in square brackets, in both cases [V A V] (or VPV using semantic role tagging).[36]

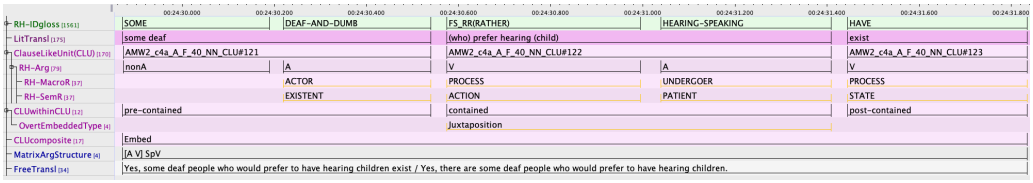
The following are examples of embedded modifying CLUs and their associated annotations:

(135) With overt manual lexical sign:

[36] The matrix clause annotations were entered here after the CLU annotations were exported, filtered and sorted in other programs as part of determining argument structure patterns in different types of simple and complex clauses in Auslan. Strictly speaking matrix clause annotations are a part of tertiary processing which is not discussed or exemplified further in these guidelines. The MatrixArgStructure tier is shown for these few examples only to simply illustrate the point being made.



(136) Without overt marking:



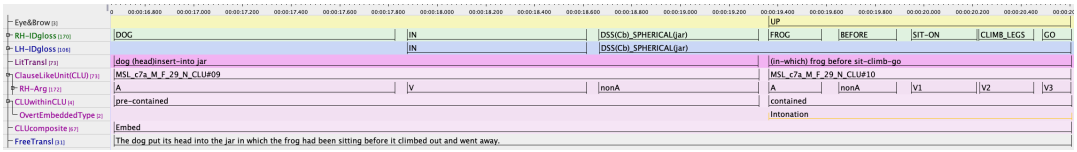
4.2.2.5.1.1 The OvertEmbeddedType tier

The annotation on this daughter tier records the basis upon which the judgement of embedding has been made: lexis, juxtaposition (apposition), (visual) intonation, space (spatial placement). These corpus annotations allow for an evidence based and usage-based account of the nature of the relationships that are made and how each type of relationship is typically expressed, i.e., if it warrants being described as a formal constructional schema of the grammar. To date, lexis and juxtaposition appear to be the strategies most used with embedded clauses.

In complement embedded clauses, as in examples **Error! Reference source not found.**, (133) and (134), the indicator of embeddedness is found in the lexis of either the PRE-CONTAINED or POST-CONTAINED CLUs: YELL-SCREAM in **Error! Reference source not found.**, SAY in (133) and LOOK in (134). These and other verbs of locution, perception or cognition (such as THINK, BELIEVE, KNOW, etc.) are often (and some always) used transitively. This means they usually involve two participants: an entity who *says, perceives, thinks,* etc, and something which is *said*, or *perceived* or *thought*. The signs said, the thing perceived, or idea thought may be expressed with a single sign (e.g., BOY YELL "WOLF", BOY SEE WOLF or BOY THINK "FUNNY") which is treated as an argument of a simple clause, i.e., it is not analysed as embedded in our schema (recall §3.3.3 above). Usually, however, these verbs of locution, perception or cognition take an argument which is a clausal complement (an embedded clause) as in the cited examples.

In modifying embedded clauses, as in (135), there can also be lexical marking: the relativizer WHO marks the embedded clause which modifies the noun PERSON. However, it appears to be more common for there to be no overt marking of embeddedness with modifying embedded clauses: the modifying clause is simply uttered immediately after the noun, as in (136). Less frequently a (visual) intonation contour is used to set the embedded clause off from the matrix clause, as in (137), where raised eyebrows co-occur with the modifying clause.

(137)

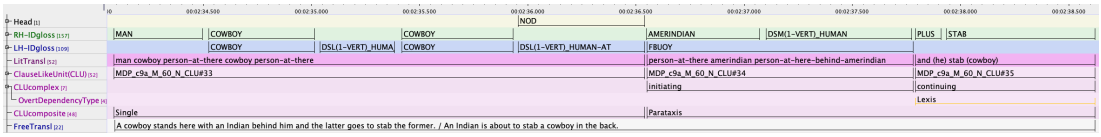


4.2.2.5.2 The CLUcomplex tier

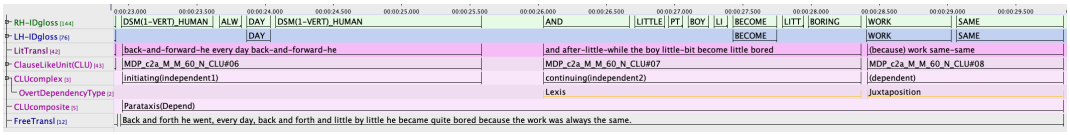
On this tier one tags if a CLU is linked to another CLU. If two or more otherwise complete CLUs are joined together to form one larger complex construction then the relationship is made explicit on this tier.

If the relation is paratactic (a linking of two clauses of equal status) the first clause is tagged as INITIATING, and the second clause, the one that usually carries some marking of its relationship to the first, is tagged as CONTINUING. The following two examples use the additive conjunctions PLUS and AND, respectively:

(138)

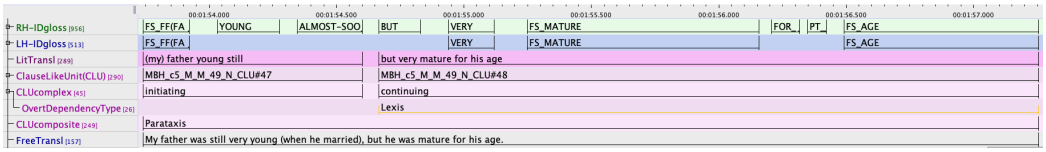


(139)



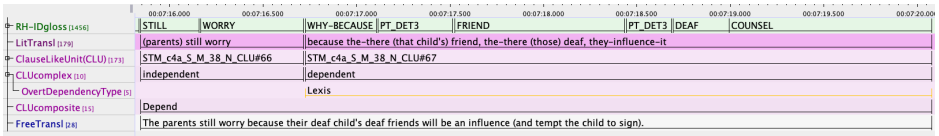
The following uses the adversative (or contrastive) conjunction BUT:

(140)

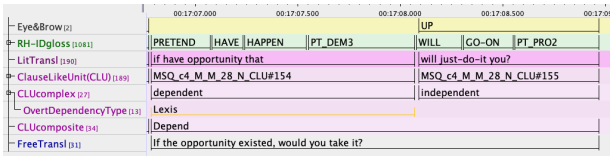


If the relation is hypotactic (a linking of two clauses of unequal status) the CLU that carries the marking showing that it is dependent on the other is tagged DEPENDENT, and the other CLU is labelled INDEPENDENT. In (141) the dependent clause has a causal subordinating conjunction (WHY-BECAUSE) and in (142) the dependent clause has one of the conditional subordinating conjunctions in Auslan (PRETEND).

(141)



(142)

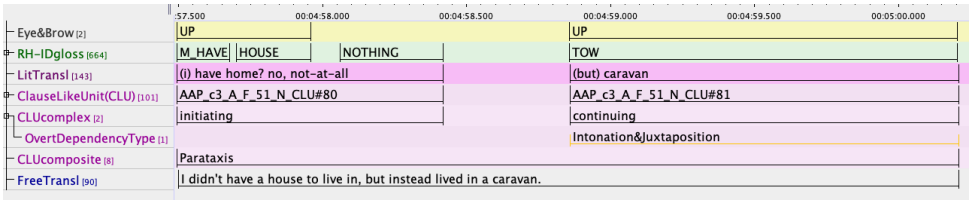


4.2.2.5.2.1 The OvertDependencyType tier

The annotation on this daughter tier is used to record the basis upon which the judgement of the existence of a clause complex has been made, namely: lexis, juxtaposition (apposition), (visual) intonation, space (spatial placement). The non-manual or visual prosodic markers of subordination usually involve raised eyebrows, increased eye aperture, and/or a raised chin/tilted back head, singly or in combination. Any one of these suggests the utterance unit is 'incomplete' and DEPENDENT on another which immediately follows (the INDEPENDENT clause). In addition, paratactically and hypotactically linked clauses may be articulated in contrastive locations in the signing space (e.g., left versus right, or high versus low). By identifying the meanings of each clause as they appear, and by making explicit which strategy has been used to indicate the relationship of clauses to each other, the way these types of relationships are typically expressed in Auslan can be determined.

In examples (138), (139) and (140) paratactic subordination is expressed lexically, but it could be expressed using other strategies. For example, in (143) the adversative meaning is achieved by visual intonation (the raised eyebrows, tagged as UP) and juxtaposition. In the adversative clause (which only consists of one sign) the raised eyebrows suggest surprise (i.e., the juxtaposed information is contrary to normal expectations).

(143) Paratactic (adversative, intonation)

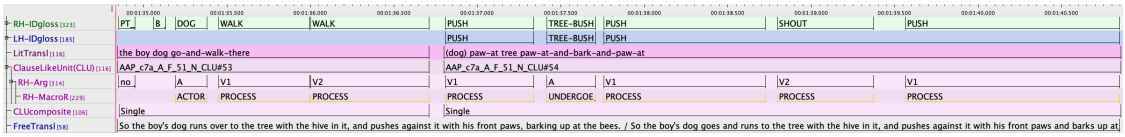


Additive meanings using other strategies, however, are usually not as easy to identify. Simple clause coordination in Auslan is not as frequently explicitly coded with a manual sign as one might expect, especially given the potential influence from the ambient spoken language, English. Rather, coordination is often simply implied by contiguous clauses joined prosodically and/or articulated with two (or more) in distinct spatial locations. Often additive coordination may appear to be the best analysis of two juxtaposed clauses that logically constitute a sequence of events. However, the high frequency of verb-only clauses in Auslan (McKee et al., 2011; Hodge, 2013; Ferrara & Johnston, 2014; Johnston, 2019) can make it sometimes difficult to distinguish between single clauses with serial verb-like constructions, and coordinated clauses. Assuming both have a single prosodic contour, one can only apply semantic criteria to distinguish these: 'single complex event' suggests a serial verb construction, 'two related events' suggests either a paratactic additive relation, or simply a real-world temporal unfolding of events.

In (144), we see two sequential actions (*going to the tree by walking* and *pushing or pawing at the tree while barking*) expressed by two CLUs, each with a two verb sequence (serial verb construction) for each of the complex actions. Neither the two verb constructions nor the two CLUs are overtly marked with a conjunction (or any other way, ignoring

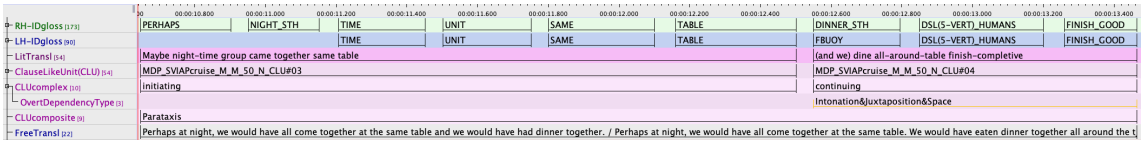
sequence). It appears reasonable to say they there is no overt paratactic relation here, even if the most comfortable translation of the stretch into English would use one or more such conjunctions.

(144)



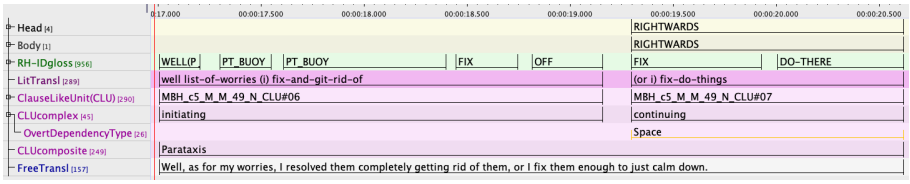
In (145), there is still no overt coordinator conjunction but the two clauses seem very tightly bound in sense (people usually come together at a table in order to eat), prosody (there is no discernible break between the clauses), and even perhaps spatially (the depicting sign DSL(5-VERT)_HUMANS-IN-CIRCLE is articulated where TABLE had previously been signed). Thus, it appears reasonable to tag them as actually linked, citing juxtaposition, space and prosody as reinforcing this interpretation:

(145) Paratactic (additive & non-lexical) or simply two sequential events?



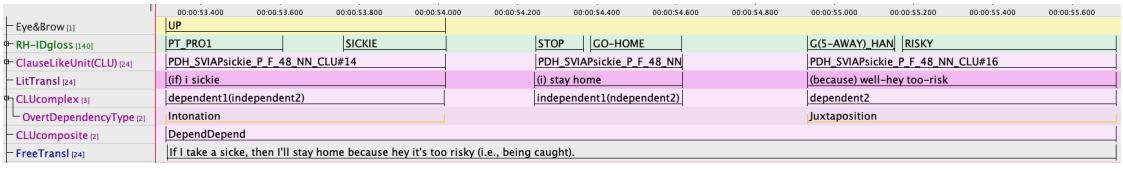
The marked use of space is relatively infrequent, but when present it is often used to express alternatives, as in (146), where the head and body (and hence the arms and hands) lean rightwards during the articulation of the second CLU.

(146) Paratactic (alternative conjunction)



With respect to hypotactic dependency, in examples (142) and (141) the identification of this relationship was based on lexis: the subordinating conjunctions (WHY-BECAUSE and PRETEND) mark the one of the clauses as a dependent subordinate clause. However, the expression of this relationship could be achieved by intonation or juxtaposition instead, as in the following example with the raised eyebrows on the dependent conditional clause (the protasis).[37]

(147) Hypotactic (conditional, intonation only)



[37] In Australian English a 'sickie' is a day one takes off work for illness, especially if one is not actually sick. The narrator has been talking about her experience of being seen at a shopping mall by her boss when she was supposed to have been at home sick.

The third CLU in (147) is also an example of non-lexical hypotactic subordination, but this time it is merely juxtaposed to the previous two CLUs which consist the independent unit for this dependent clause of reason. The annotator feels that in context the signer is definitely giving a reason why she would stay home next time when she's supposed to be sick, i.e., *because* it's too risky. However, the tag JUXTAPOSITION clearly indicates that context is really the only reason for this interpretation. When quantifying the types of clausal relationships and their coding strategies identified in the Auslan Corpus, it is then possible to compare and contrast subordinate clauses of reason that are overtly marked and those that are not. Only if the latter appear to be very frequent in the language would it deserve to be noted. After all, it is possible to say in English *If I ever take a sickie again, then I'm going to stay at home. It's really too risky.* The final sentence *It's really too risky* is understood to be giving a reason. Causality is not expressed in the lexico-grammar in this case, even though we know that English speakers are probably more likely to encode the relationship: *If I ever take a sickie again, then I'm going to stay at home, because it's really too risky.*

Finally, as can be seen from the annotations in (147), the juxtaposition creates a complex dependency which tagged on the CLUcomposite tier in the example as DependDepend. The next section explains the types of tagging on the CLUcomposite tier.

4.2.2.6 The CLUcomposite tier

The type of large complex sentence created by embedding or linking is annotated on the CLUcomposite tier.

A complex sentence that consists of a CONTAINED clause and a matrix clause is labelled EMBED. (Recall that the matrix clause could be PRE-CONTAINED+CONTAINED, CONTAINED+POST-CONTAINED, or PRE-CONTAINED+CONTAINED+POST-CONTAINED.)

A complex sentence that consists of two clauses paratactically linked (INITIATING+CONTINUING) is labelled PARATAXIS; and one consisting of two clauses hypotactically linked (INDEPENDENT+DEPENDENT, or DEPENDENT+INDEPENDENT) is labelled DEPEND.

Complex sentences may even display more than one type of complexity such as multiple nested types of embedding or linking. Double embedding is labelled EMBEDEMBED and double dependency is labelled DEPENDDEPEND (see example (147); mixed multiple nested types are labelled EMBEDDEPEND when the first unit is an EMBED-type, as in: *The boy thought "If I sound the alarm, the villagers will all come running."* or DEPENDEMBED when the first unit is a DEPEND-type, as in: *"If I sound the alarm, the villagers will all come running." the boy thought*. Though they are relatively rare, very complex sentences of yet greater levels of nesting exist and they can be annotated by further expansion using the same logic: EMBEDEMBEDEMBED (*The hare thought that the tortoise, who he couldn't see, was behind him*), DEPENDDEPENDDEPEND, EMBEDDEPENDEMBED, DEPENDEMBEDDEPEND, and so on. The use of the CLUcomposite tier can be seen in examples (134)-(147).

Identifying sentence complexity on a dedicated tier means it is simpler to extract information about clause patterns from the corpus. The CLUcomposite tier tags can be compared to the aligned CLUwithinCLU and OvertEmbedType tiers or the CLUcomplex and

OvertDependencyType tiers to quantify the distribution of lexical versus non-lexical strategies in creating complex sentences. Consequently, in order to account for all the data, simple clauses and non-clauses must also be identified on this tier.

Simple clauses 'stand-alone' as utterance units. They are not linked to or embedded in another contiguous clause. Of course, within a text or discourse clauses are related cohesively anyway, through topic maintenance, referential chains, lexis and register, so in sense in a multi-clause utterance no clause really stands alone at all. It is just that they are stand-alone when compared to the complex sentences in which there is overt linking. Simple clauses are tagged as SINGLE on the CLUcomposite tier.

Finally, all other CLUs such as interactive gestures, exclamations, backchannels, and salutations (essentially 'non-clauses') are tagged as FRAGMENTs.

5 Conclusion

In the creation of the Auslan corpus annotations occur in three phases which we call primary, secondary, and tertiary processing. In these guidelines the conventions for primary annotation were discussed first. We explained how primary annotation has itself two phases: basic annotation and detailed annotation. The basic level of corpus annotation involves *segmenting* the Auslan text into sense units that a free translation into written English aligns comfortably with, and *segmenting* and *tokenising* the Auslan text into individual signed units and then *glossing* these units. The detailed level of corpus annotation involves annotating other types of linguistic and communicative activity, including those involving non-manual activity

We then discussed the schema and conventions for secondary annotations and tagging. We explained how secondary annotations are added to the manual sign units identified in primary processing. The secondary annotations involve the sub-categorisation of constructions of various sizes from individual signs to phrases, clauses, and clause complexes, and the identification of their constituents. Secondary processing thus adds phonological, morphological, semantic, syntactic, pragmatic and discourse information about linguistic forms, depending on the purpose of the analysis.

Tertiary processing was not discussed in these guidelines. Descriptions of tertiary processing implemented in the Auslan Corpus files can be found in the methods section of many of the research publications that report on specific studies. These studies can be found in the reference list to these guidelines because they have all been cited here.

Table 31 The three levels of corpus processing in brief

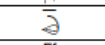
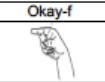
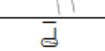
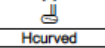
Primary processing	Secondary processing	Tertiary processing
Segmentation, tokenization & translation: ID-glossing, parallel free translation	*Sub-categorization of constructions signs, utterance units, & constituency:* part of speech, constituency in phrases, clauses; clause complexes, depictions, clause-based literal translation, etc.	*Incorporation of information derived from the co-occurrence of various values from primary and secondary processing into tags inserted into the corpus:* frequency tagging, construction type tagging, etc.

6 Appendix

Illustrations of the Auslan handshapes with their transcription into HamNoSys, and word or number based descriptors used in annotations (under the HamNoSys) and naming handshape values in Signbank (under the previous two) are shown in on the following pages. The handshape chart is based on the Auslan handshape order used to sequence signs in the second edition of the Auslan dictionary (Johnston 1998), with some recent changes in naming. They are sequenced according to the Auslan number that the handshape is used along with those handshapes that most closely resembles, usually in terms of extended figures. (For further details regarding the distinctive handshapes of Auslan and their ordering see Johnston (2001) and Johnston and Schembri (2007a).) No claim is being made that this particular Auslan handshape order is relevant to any other SL. For the precise specification of handshapes, as part of phonetic or phonological transcription one should use HamNoSys.

As with many of the ELAN screen grabs in these guidelines, one will need to enlarge the view of this pdf by up to 200% in order to see the handshapes clearly.

Table 32 Auslan handshape sequence chart

#	Base	Variant1	Variant2	Variant3
0				
				
	O	Oflat	Oflick	Oe
	Round	Round-flat	Round-flick	Round-E
				
				
	F	Fflat	Ff	
	Okay	Okay-flat	Okay-f	
1				
				
	1	1d	1angled	1angled-thumb
	Point	Point-d	Point-angled	Point-angled-thumb
				
				
	X	Xbent		
	Hook	Hook-bent		
2				
				
	2	2angle		
	Two	Two-angled		
				
				
	2bent			
	Kneel			
				
	 3			
	PK	PK-snap		
	Perth			
				
				
	H	Hthumb	Hcurved	
	Spoon	Spoon-thumb	Spoon-curved	
	3 \ 4			
	N			
	Letter-n			
	2 3			
	R			
	Wish			
3				
	5	5	5	
	3	3curved	3bent	
	Three	Three-curved	Three-bent	
	5			
	P			
	Mother			

#	Base	Variant1	Variant2	Variant3
	4 \ 5			
	M			
	Letter-m			
4				
	4	4curved		
	Four	Four-curved		
5				
	5	5angled		
	Five	Five-angled		
	5curved	5bent		
	Ball	Ball-bent		
	B	Bb	B-angled	Bb-angled
	Flat	Flat-B	Flat-angled	Flat-B-angled
	Bc	Bc-open		
	Thick	Thick-open		
	Cb	Cbthumb	Cbflush	
	Cup	Cup-thumb	Cup-flush	
6				
	6	6bent		
	Good	Good-bent		
	5	5		
	I	Ibent		
	Bad	Bad-bent		
7				
		1		
	7	7bent-thumb		
	Gun	Gun-bent		
	1			
	7x			
	Buckle			
	C	Copen		
	Letter-C	Letter-C-open		
	G	Gopen		
	Small	Small-open		
	4 5			

#	Base	Variant1	Variant2	Variant3
	7old			
	Seven-old			
8				
				
	8	8curved		
	Eight	Eight-curved		
9				
				
	9			
	Nine			
10				
				
	S	Sa		
	Fist	Fist-A		
				
				
	T	Tflick	Tclosed	
	Soon	Soon-flick	Soon-closed	
				
				
	Kflick	Ktip	K	Kc
	Ten	Ten-tip	Ten-flat	Ten-tip-open
11				
				
	11	11flat	11flick	
	Write	Write-flat	Write-flick	
12				
				
	12	12closed	12flick	
	Salt	Salt-closed	Salt-flick	
				
				
	12open			
	Duck			
N/A				
				
	!open			
	Middle			
N/A				
				
	!			
	Rude			
N/A				
				
	Y			
	Ambivalent			
N/A				
				
	ILY			
	Love			
N/A				
				
	H-irish	H-irish-closed		
	Animal	Animal-closed		

N/A				
				
	Q			
	Queer			

Table 33 Details of the mouth gesture form codes and glosses*

'Closed' mouth gestures			'Open' mouth gestures			Tongue-related mouth gestures		
Auslan study codes	SS&Day	Auslan study glosses	Auslan study codes	SS&Day	Auslan study glosses	Auslan study codes	SS&Day	Auslan study gloss
CN1	CN14	LIP-CURL	ON1	OL12	OPEN	OT1TL	OL18	TONGUE
CN2	CN16	WIDE	ON2	OL13	OPEN	OT1TM	OL19	TONGUE
CN3	CN15	N/A	ON3	OL13	OPEN	OT1TR	OL20	TONGUE
CN4	CN17	DOWN	ON4	N/A	DOWN	OT1BL	OL18	TONGUE
CN5	CN18?	LIPS-PRESSED	ON5	N/A	N/A	OT1BM	OL19	TONGUE
CN6	CN18	N/A	ON6	OL12	SLIGHTLY OPEN	OT1BR	OL20	TONGUE
CN7	CN19	TRILL	ON7	OL13	WIDE	OT1WL	OL18	TONGUE
CN8	CN20	BLOW	ON	OL13	WIDE	OT1WM	OL19	TONGUE
CN9	CN22	TRILL	ON9	N/A	DOWN	OT1WR	OL20	TONGUE
CN10	CN21	TRILL	ON10	N/A	LIP-CURL	OT2	OL15	TONGUE
CN11	CN23	LIPS-OUT	ON11	OL14	BOTTOM-LIP-OUT	OT3	N/A	TONGUE
CN12	CN7	LIPS-OUT	ON12	OL6	SLIGHTLY OPEN	OT4TL	OL9	TONGUE
CN13	CN8	LIPS-OUT/ TRILL	ON13	OT7	WIDE	OT4TM	OL9	TONGUE
CN14	CN9	LIPS-OUT	ON14	OL7	WIDE	OT4TR	OL9	TONGUE
CN15	CN12	TRILL	ON15	N/A	DOWN	OT4BL	OL10	TONGUE
CN16	CN13	LIPS-OUT	ON16	OL8	LIPS-OUT	OT4BM	OL10	TONGUE
CN17	CN10	TRILL	ON17	N/A	BLOW	OT4BR	OL10	TONGUE
CN18	CN11	TRILL	ON18	N/A	BLOW	OT4WL	OL11	TONGUE
CN19	CN2	TONGUE	ON19	N/A	BLOW	OT4WM	OL11	TONGUE
CN20	CN3	BOTTOM-LIP-OUT				OT4WR	OL11	TONGUE
CN21	CN4	PRESSED				OT5	OT1	TONGUE
CN22	CN5	DOWN				OT6	N/A	TONGUE
CN23	CN6	PRESSED				OT7TL	OL1,OT8	TONGUE
						OT7TM	OL2,OT8	TONGUE
CP1	CN1	PUFF				OT7TR	OL3,OT8	TONGUE
CP2	CP1	PUFF				OT7BL	OL4,OT9	TONGUE
CP3	CP3,4,5	PUFF				OT7BM	OL4,OT9	TONGUE
CP4	CP2	PUFF				OT7BR	OL4,OT9	TONGUE
CP5	N/A	TRILL				OT7WL	OL5,OT10	TONGUE
CP6	CP7	PUFF/TRILL				OT7WM	OL5,OT10	TONGUE
CP7	CP6	PUFF/ TRILL/ BLOW				OT7WR	OL5,OT10	TONGUE
CP8	CP8	PUFF/ BLOW				OT8	OT1	TONGUE
						OT9	N/A	TONGUE

* Auslan study codes and glosses from (Johnston et al., 2016) and equivalents in the BSL coding schema (Sutton-Spence & Day, 2001) from which they were adapted.

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