

ANNOTATING NON-MANUAL ENCODING OF QUESTION TYPES IN BRITISH SIGN LANGUAGE: REFINEMENTS FOR BSL RESEARCH

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Abstract: Glossing is a central methodological practice in sign language linguistics, but there is little consistency in conventions for representing non-manual features and their linguistic importance in British Sign Language (BSL), particularly in relation to discourse-pragmatic phenomena such as question type. This lack of standardisation often results in the flattening or obscuring of non-manual articulation, limiting analytical precision and reducing comparability across studies. This dissertation addresses this problem by examining how non-manual articulation encodes different question types in BSL, and how these distinctions can be systematically and efficiently represented in annotation and written glossing. The study combines a critical review of existing BSL glossing conventions with empirical analysis of elicited phrase-list video data and minimal pair comparisons across lexically identical information-seeking and rhetorical questions. The analysis identifies six non-manual articulators (eyebrows, eyelids, head position, head upward/downward rotation, torso position, and eye gaze) as consistently meaningful for encoding and distinguishing BSL question types. Rather than static markers as in other conventions, question encoding emerges as sequential, scoped, and driven by stance and signer intent. Based on these findings, this study proposes a task-specific annotation framework compatible with the linguistic annotation programme ELAN, alongside two complementary written glossing formats. Together, these proposals offer a principled refinement of existing practices to improve transparency, replicability, comparability, and interpretive clarity in BSL linguistic research.

Keywords: British Sign Language, sign language pragmatics, non-manual features, rhetorical questions, question types, annotation

Supervisor(s): Dr Rebecca Woods

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1 Introduction

Glossing is a core methodological annotation practice in sign language linguistics, as it provides a structured written representation of data from an otherwise unwritten language (Crasborn 2015: 76) that enables analysis, comparison and theoretical argumentation within sign language research. As Bauer (2007: 185) and Cormier et al. (2016: 26) note, glosses serve as interlinear representations of a language to reveal linguistic structure, rather than acting as translations.

1.1 Context & rationale

In signed languages, where meaning is distributed across both manual signs and non-manual articulators (NMAs) (Sutton-Spence & Woll 1999: 81), the level of detail encoded within a gloss plays a particularly crucial role: determining which aspects of language are analytically visible. However, unlike conventional annotation systems for spoken languages like the Leipzig Glossing Rules (Comrie et al. 2008), there is no universally agreed glossing model for British Sign Language (BSL) that consistently provides information on NMAs as well as lexical signs (Cormier et al. 2016: 35). Existing conventions vary considerably across corpora and publications, and often, where NMAs are annotated, this complicates both the construction and machine-readability of the corpus (Crasborn 2015: 79–80).

Contemporary efforts towards standardisation, most notably the Digging into Signs (DIS) project, have argued that consistent glossing maximises corpus usability beyond individual projects, supporting reliability, comparability and cross-linguistic research (Cormier et al. 2016: 35). Equally, though, DIS explicitly acknowledges persistent challenges, including the representation and granularity of non-lexical detail, variation in notation preferences by research aim (e.g., form vs. function), and relatively modest inter-annotator variation even under shared guidelines (Cormier et al. 2016: 37).

One area that remains particularly underdeveloped in sign language research is the systematic encoding of non-manual features (NMFs) such as eyebrow movement, head position, eye gaze, and mouth configuration (Cormier et al. 2016: 35), despite their well-recognised and

established grammatical and pragmatic functions in BSL (Sutton-Spence & Woll 1999: 65–80; Deuchar 2013: 92).

1.2 Research aims

This limitation in annotation methods proves especially salient in the analysis of question types and their encoding in BSL. Linguistic work on questions has distinguished information-seeking (sometimes called “prototypical”, “genuine” or “canonical”) and rhetorical questions (Schmidt-Radefeldt 1977: 375), with prosodic and intonational properties contributing to their differentiation (Dehé & Braun 2020: 174).

Similarly, in BSL, such distinctions are often conveyed through non-manual and temporal cues, rather than the syntax of manual gesture alone (Sutton-Spence & Woll 1999: 67–70). Glosses pared down to only the lexical detail risk obscuring these distinctions, particularly where the pragmatic intention of the question otherwise depends on discourse context such as speaker stance and common ground (Dehé & Braun 2020: 174; Frank 1990: 737; Ippolito 2021: 366). Without explicit encoding of the NMFs marking differences in question type, interrogative utterances that differ discourse-pragmatically may be glossed identically, obscuring contrasts central to pragmatic analysis.

The present study is a combined methodological approach with both an overview of existing literature and sign language annotation methods, and data collection and analysis in order to:

- i. review and evaluate current BSL glossing conventions with respect to non-manual question encoding;
- ii. propose refinements for representing non-manual marking of question types in BSL annotation; and
- iii. discuss the clarity and practicality of these refinements in real-world applications for linguistic research.

These research aims guide this study’s research into which NMFs are meaningful in encoding question types in BSL, and how these can be systematically glossed with ELAN-based as well as written standards without sacrificing analytical consistency or empirical nuance.

2 Background

2.1 *British Sign Language linguistics*

All documented languages are capable of structuring questions, and BSL is not an exception (Sutton-Spence & Woll, 1999: 65). However, although language users may intuitively recognise what “counts” as a question in everyday speech, defining what this means in linguistic research is much more complex. Questions can be characterised either by their function (what, if anything, they seek from the addressee) or by their form (language structure) (Frank 1990: 725). In BSL, as in some spoken languages, form and function don’t always align (Sutton-Spence & Woll 1999: 66).

The function of a typical question is usually treated as a request for information, prompting a relevant next action, i.e., a response (Dehé & Braun 2020: 174; Sutton-Spence & Woll 1999: 65). In BSL, common canonical question structures comprise a phrase-final Wh-sign (*NAME YOU WHAT?*), or a doubled Wh-sign (*WHO? HER MOTHER WHO?*). Not all canonical questions in BSL are Wh-questions, though: some are polar questions, and some requests for information aren’t expressed in an interrogative form, e.g., *NAME!* (Sutton-Spence & Woll 1999: 66–70).

This distinction between interrogative form and the function of questioning is foundational for understanding how canonical, information-seeking questions are marked in BSL. Moreover, it is crucial for research on rhetorical questions, which often retain an interrogative surface form, but don’t have the canonical information-seeking goal (Frank 1990: 723; Schmidt-Radefeldt 1977: 377–379) (see Section 3.1).

In form, Sutton-Spence & Woll (1999: 60–70) identify three core properties that mark questions from declaratives in BSL:

- i. the presence of specialised question signs (Wh-signs);
- ii. linguistically meaningful non-manual marking (particularly eyebrows); and
- iii. a flexible, optional change in sign order.

Within BSL, two main canonical question types are traditionally identified: Yes/No (polar) questions, and Wh-questions (“who”, “what”, “why”, etc.) (Sutton-Spence & Woll 1999: 68–69). Within BSL literature, and even within pedagogical settings where BSL is taught as a second language (see Fig. 1), non-manual markers of question types are often described as having simple, predictable patterning (Sutton-Spence & Woll 1999: 67–70). The assumed patterns are: raised eyebrows, widened eyes and backwards head tilt for Yes/No; furrowed eyebrows, narrowed eyes and forward head tilt for Wh-questions; and rhetorical questions patterning similarly to polar questions. Crucially, though, Sutton-Spence & Woll explicitly caution that the rule for brow-raising isn’t without exceptions, as non-manual articulation is often dependent on emotional state, stance, and interactional context. They note that BSL sign order generally remains unchanged between declaratives and polar questions (with the exception of optionally adding a tag question like *TRUE* or *RIGHT*) – thus reinforcing the importance of NMAs for marking interrogative function.

Wh-questions in BSL, by contrast, do use manual Wh-signs to mark their function in a generally accepted pattern: brow-furrowing, eye-narrowing, and forward tilt (Sutton-Spence & Woll 1999: 68). However, again, this is not absolute, and may be shaped by turn-taking or epistemic considerations: for example, Deuchar (2013: 92) states that brow position may reflect the amount of information needed, rather than a rigid Wh- vs. polar distinction. This further destabilises any simple, conventional, homogeneous mapping between question type and non-manual articulation.

Things to remember

- Use the appropriate movement on your forehead (up for yes/no questions and down for other questions).
- Use the appropriate facial expression for each pattern.
- Also, be sure to use the proper directional verbs from the body toward the outside of the space and neutral space toward the body and vice versa.
- Use your face and mouth patterns – always make sure you have the correct expression. If you are not sure, look in the mirror, practice moving your mouth up and down, and your eyebrows up and down, respectively. This exercises your facial muscles for BSL (and helps to tone up your skin!).

Fig. 1 – Level 2 BSL class handout from a native signing Deaf teacher (Newcastle University, 2025), suggesting homogeneity within canonical question types as part of pedagogical resources

Rhetorical questions in BSL are a particularly revealing issue for any attempt to simplify non-manuals into one pattern per question type. Although interrogative in form (often with a Wh-sign like *ME GO HOME WHY – ME FELT ILL*), their function can be emphatic, evaluative, or stance-marking, rather than information-seeking (Frank 1990: 737; Ippolito 2021: 366). Schmidt-Radefeldt (1977 378–385) describes rhetorical questions as implying shared knowledge, emphasising the speaker’s opinion or stance, dismissing an idea, and maintaining addressee attention. Though there are descriptions that suggest a “true” rhetorical question is only one that is dismissive or negative in stance (mentioned in Schmidt-Radefeldt 1977: 376), non-information-seeking questions appear particularly salient in BSL for a much broader scope of discourse-pragmatic functions. For example, when a Wh-sign follows a verb, this often signals that the next utterance will be a self-answer. Sutton-Spence & Woll (1999: 71) give an example of such a structure: ‘*START WHEN FOURTEEN YEARS-AGO*’, best translated as ‘When it started was fourteen years ago’.

The immense variety of rhetorical questions in BSL (defined in the present study as non-information-seeking questions, with a more detailed definition in Section 3.1), often with similar surface structure, suggests a core tension to annotation methods that flatten BSL NMFs into one static, unchanging marker like “brow raise”. The richness of BSL discourse-pragmatics renders any single-movement pattern inadequate. In essence, NMFs in BSL seem to function similarly to intonation and prosody in spoken languages – and must be treated with the same amount of nuance and faithfulness.

2.2 Literature overview

Several written annotations of BSL successfully non-manual articulation as central to interrogative marking (Sutton-Spence & Woll 1999: 66–67; Deuchar 2013: 189). However, due to their format as part of a written text, they may lack the detail needed to accurately portray how non-manuals are used in different question types. The common pedagogical rules (raised brows for Yes/No questions and furrowed brows for Wh-questions) (Fig. 1) are weakened or even contradicted by real-world, discourse-based exceptions (Sutton-Spence &

Woll 1999: 67–70). The same NMAs and their movement or position are known to have a role in emotional expression, stance, turn-taking, politeness, and knowledge sharing (Sutton-Spence & Woll 1999: 67).

This instability in annotation methods becomes especially problematic in the treatment of rhetorical questions. While Sutton-Spence & Woll do outline broad functional distinctions (Wh-, Yes-No, Alternative and Rhetorical Questions), rhetorical questions are often treated as a residual category, distinguished simply as ‘not real questions’ (Sutton-Spence & Woll: 70). Frank’s (1990: 737) assertion regarding spoken languages that ‘definitions of RQs [...] are inadequate’ may also apply to signed languages: it seems reasonable to believe that ‘the purposes served by RQ’s in conversation can vary, depending on the approach’ for signed languages, too. Crucially, little systematic qualitative work has examined whether different rhetorical subtypes or functions (e.g., emphasising an opinion vs. maintaining addressee attention) have NMA patterns in BSL to distinguish them from each other and/or from information-seeking questions in a way that could be operationalised for more accurate annotation.

This is where the gap in the current literature becomes particularly acute. Although NMFs are widely included in annotations of BSL and other signed languages (with varying degrees of accuracy) (Sutton-Spence & Woll 1999: 67–70; Crasborn 2015: 80), there is no agreed framework for, or qualitative analysis of, functional non-manuals primarily encoding question type and intent, as opposed to form-based non-manuals primarily encoding emotion or signer-specific style. As a result, rhetorical questions and their subtypes remain theoretically recognised, but empirically under-studied and under-described in BSL linguistic research, especially at the level of formal annotation and glossing.

2.3 *BSL annotation aims*

Depending on the researcher’s aims, BSL annotation systems can choose to include or omit non-manual information (Cormier et al. 2016: 35). For example, if examining sign order or manual articulation, annotating non-manual articulation may be unnecessary. One widely-used existing system for sign language annotation is the Digging into Signs project (DIS) (Cormier et al. 2016), which aimed to set the standard for machine-readable annotations in

BSL corpora. The DIS shows integration of corpus methodology with computer programmes, as well as a convention for capitalised ID-glosses in a metalanguage to reference lexical items (see Fig. 2) that is now widely accepted or adapted in sign language research (see similar frameworks such as the Annotation standard for Non-Manual elements in visual communication (ANM 2024–present)). However, it fails to provide standards that account for finer annotation of NMAs due to its focus on signed language generalisability to facilitate ‘basic annotation of hand activity’, not non-manual features (Cormier et al. 2016: 35).

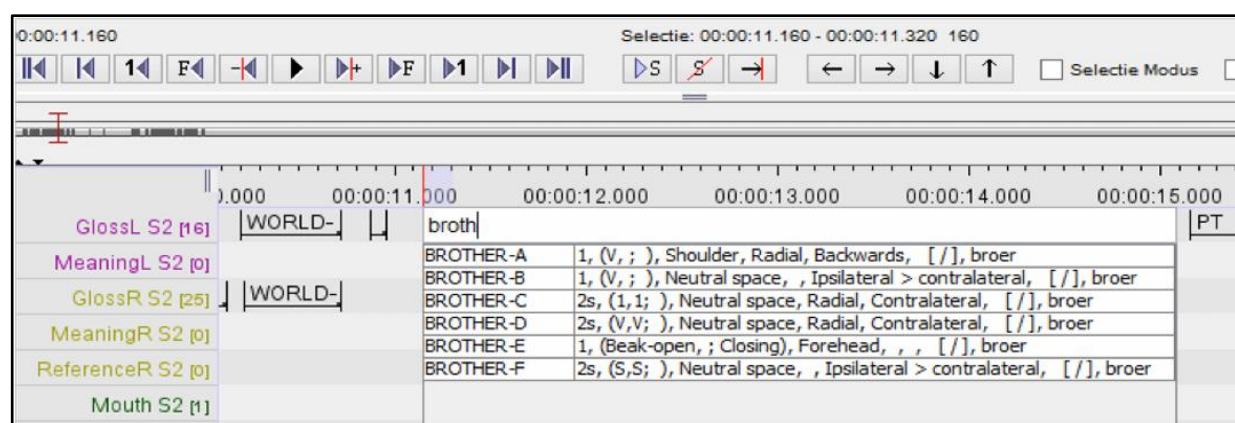


Fig. 2 – An annotation from the DIS project’s standards, showing a drop-down list of ID-glosses with phonological descriptions.

Crasborn’s (2015: 75) overview of sign language notation methods focuses on manual gestures, but his separation of the purposes of glossing, transcription and annotation is still relevant here. Glosses prioritise text-searchability but often obscure phonetic and prosodic detail. Phonetic transcriptions of handshape notation offer precision in manual detail but are time-consuming and are largely intended solely for detailed sign language phonology notation. Modern sign language corpus practice therefore increasingly relies on multi-tier annotation, which Crasborn (2015: 75) defines as linked to video, audio or text-string data in programmes such as the linguistic annotation tool ELAN, where different articulators (manual or not) can be independently coded, aligned temporally with a lexical gloss.

The current commonest practice is to select specific dimensions relevant to the study’s aims to annotate, due to the time-taking nature of manually annotating sign language video data. This methodology directly motivates the approach taken in the present study: choosing to annotate only non-manuals and examining which NMAs encode discourse-pragmatic function in question types. The analytical aim of this study thus emerges directly from current

conventions of multi-tier glossing, ID-glossing in English, and the use of ELAN, motivated by the present gap in question-type studies in BSL linguistic research.

3 Data & methodology

3.1 Variable: Question types in BSL

The primary variable of interest in this study is question type in BSL, separated into two broad functional categories: genuine (information-seeking) questions and rhetorical questions, which contrast genuine questions in function whilst retaining interrogative form (Schmidt-Radefeldt 1977: 375). Within these distinctions, question types in this study are further categorised by subtype to examine whether different pragmatic functions correspond to the systematic encoding of different NMA patterns.

Two information-seeking question (ISQ) types are typically analysed in BSL: Wh-questions (“who”, “what”, “when”, “where”, “why”, “how”) and polar questions (prompting a yes/no answer) (Sutton-Spence & Woll 1999: 66; Deuchar 2013: 92). As described earlier, some BSL linguistics literature and learning materials claim that Wh-questions pattern with a brow furrow, whilst polar and rhetorical questions pattern with a brow raise (see Fig. 1; Sutton-Spence & Woll 1999: 68). The two ISQ subtypes were chosen to serve as the baseline interrogatives against which rhetorical questions are compared: both to test whether these patterns are correct; and to describe in more detail how BSL rhetorical question subtypes pattern non-manually.

Rhetorical questions (RhQs) had to first be defined. Definitions and functions of RhQs are hugely variable across the literature on spoken languages, and seem to be largely based on how broad the focus of their research is: from the broadest definition of “not seeking information” (Schmidt-Radefeldt 1977: 375) to the narrowest definition of “specifically conveying, emphasising or asserting speaker attitude” (Ippolito 2020: 608). The present study’s definition, in order to capture a broad range of BSL’s non-information-seeking questions, was guided by Schmidt-Radefeldt (1977), Frank (1990), Dehé & Braun (2020), and Ippolito (2021). Although originally written based on spoken language data, the

theoretical frameworks here were adopted because they map onto observable discourse-pragmatic functions of question types in BSL, guiding the present study’s definition of rhetorical questions:

A rhetorical question is an utterance with interrogative surface form which, within its discourse-pragmatic context, suspends the conventional information-seeking goal of a canonical question. It functions semantically as an assertive, emphatic or evaluative pseudo-statement expressing addresser stance, attitude, or presupposed belief to imply its own answer within discourse context or common ground.

The present study operationalises five stimulus subtypes, drawing on Schmidt-Radefeldt's (1977: 381–387) four-subtype classification: rhetorical question-answer sequences (RhQAs), auto-responsive rhetorical questions (ARQs), implicative rhetorical questions (IRQs), elliptical rhetorical questions (ERQs). Schmidt-Radefeldt (1977: 387) also mentions the existence of rhetorical questions that seem to combine ARQ and IRQ using comparison. For brevity, in this study we will refer to this fifth study-specific subtype as comparative rhetorical questions (CRQs).

These subtypes reflect differences in stance and discourse function. The central analytical question is whether question types that differ discourse-pragmatically (i.e., ISQs vs. RhQs and any respective subtypes which exist in BSL) are marked by NMAs. If so, annotation frameworks should include a level of accuracy appropriate to convey meaningful NMFs as part of the linguistic detail. Based on this, phrases constituting each of these five subtypes are elicited in Section 3.2.

3.2 *Data collection*

The dataset consists of two complementary components produced by two participants and collected for different analytical purposes:

- i. an initial elicited phrase-list dataset produced by participant P1 (details in Section 3.2.1), used to identify candidate NMA patterns across question types; and

- ii. a follow-up minimal pair dataset produced by P2 (details in Section 3.2.2), used to test whether contrasts identified in the initial analysis could be observed with the same manual content, differing only by question type, manipulated through discourse context.

3.2.1 Initial elicitation dataset

The first dataset comprises a small, tightly-controlled set of 12 elicited video recordings designed to isolate NMA patterns by question subtype. This dataset includes a fixed phrase list, with markers labelling if the question is intended to be information-seeking or rhetorical. The phrase list includes 4 Wh-word ISQs, 2 polar ISQs and 6 RhQs across four literature-derived RhQ subtypes and one study-specific subtype (drawing on Schmidt-Radefeldt 1977: 381–387), given in Table 1. The English wording in Table 1 represents the written elicitation stimulus and an English translation of the intended BSL utterance; the BSL productions themselves, represented by ID-glosses in the analysis and appendices, constitute the actual linguistic data analysed in this study.

Q.ID	Q.type	Q.subtype	BSL production	English translation
1	Info-seeking	Wh	YOU ARRIVE UNIVERSITY HOW	<i>How do you arrive to university?</i>
2	Info-seeking	Wh	CLASS FINISH WHAT-TIME	<i>What time does class finish?</i>
3	Info-seeking	Wh	BATHROOM WHERE	<i>Where's the bathroom?</i>
4	Info-seeking	Polar	PET YOU HAVE	<i>Do you have a pet?</i>
5	Info-seeking	Wh	COFFEE OR TEA YOU LIKE WHICH	<i>Do you like coffee or tea?</i>
6	Info-seeking	Polar	OUTSIDE RAIN	<i>Is it raining outside?</i>
7	Rhetorical	RhQA	LAST NIGHT ME DO WHAT – ME WON'T TELL-YOU	<i>What did I do last night? Not telling...</i>
8	Rhetorical	ARQ	HELPING WHO ME	<i>Who will help, if not me?</i>
9	Rhetorical	IRQ	PIZZA FREE:YOU-WANT:REFUSE:WHO	<i>Who would refuse free pizza?</i>
10	Rhetorical	CRQ	MORE IMPORTANT THAN FAMILY WHAT	<i>What's more important than family?</i>

11	Rhetorical	ERQ	CARE WHO	<i>Who cares?</i>
12	Rhetorical	ERQ	BOTHER WHY	<i>Why bother?</i>

Table 1 – Phrase-list questions

The participant for this dataset (P1) was a Deaf male, born Deaf with profound hearing loss who uses BSL as his primary language. P1 is a user of the Tyneside regional variant of BSL and has extensive linguistic experience with BSL through his work as a BSL teacher with Signature UK. He also acquired ASL in adulthood and reports fluency in ASL. P1’s native BSL competence and extensive daily use of the language made his productions the primary source for the qualitative analysis of question-type marking reported in Section 4. P1 provided informed consent by email before data collection, including consent for still images derived from the recordings to appear in the dissertation. Following the decision to make the dissertation publicly available online, consent for online publication was subsequently reconfirmed.

The complete set of initial elicitation questions is provided in Fig. 3. This list was sent to the participant via email, with a brief background to the purpose of the study given in plain English. All data were elicited rather than drawn from naturalistic conversation, allowing lexical content and the intended discourse context to be controlled across stimuli while leaving the participant’s BSL production unrestricted. The participant had time to prepare for translating the English-written questions into BSL, and recorded the videos himself with the sheet of questions visible for reference.

GENUINE QUESTIONS: How do you get to university? What time does class finish? Where is the bathroom? Do you have a pet? Do you like coffee or tea? Is it raining outside? RHETORICAL QUESTIONS: What did I do last night? Wouldn't you like to know...? Who else would help, if not me? Is there anyone who would refuse free pizza? What could be more important than family? Who cares? Why bother?

Fig. 3 – Initial elicitation questions list

3.2.2 Minimal pair dataset

Following initial analysis, a second round of data collection was undertaken using minimal pairs, to test whether observed NMA differences indeed reflect discourse-pragmatic contrasts in coding ISQs vs. RhQs rather than idiosyncratic signer style, affect or expressive behaviour. Minimal pairs were constructed as utterances with identical or near-identical manual content, sign order and lexical structure, differing only in intended question type (e.g., “What do you want?” as a genuine Wh-question vs. an elliptical rhetorical question provoked by exasperation).

Each minimal pair was embedded in a short contextual scenario prompt to clarify the intended interpretation (example in Fig. 4). This design allows NMA patterns to be compared across discourse-pragmatic contexts whilst keeping manual form constant. The complete set of minimal-pair stimuli and contextual prompts is provided in Appendix 4. This list was sent to the participant via email, giving her time to prepare for translating the English-written questions into BSL. The participant recorded the videos herself with the sheet of questions visible for reference.

Set 1

Information-seeking:

Imagine you're at home with a friend. You've offered them something to drink, so they are looking in your drinks cupboard. You ask your friend what they want.

In this scenario, sign: "WHAT DO YOU WANT?"

Rhetorical:

Imagine you're trying to work and your friend keeps walking around, looking irritated and bored. They roll their eyes at you as if

Fig. 4 – An extract from the list of minimal pair scenario prompts

The original participant would have been desirable for this second round but, due to his unavailability, the minimal pair dataset was recorded with a second participant (P2). P2 was a 23-year-old hearing woman who acquired BSL in early adulthood. BSL is not her primary language, however, she uses BSL daily in her professional teaching role at a SEND school in the Tyneside area serving Deaf and hard-of-hearing pupils alongside pupils with communication and learning disorders, some of whom use signing as part of their communication. She holds a Level 2 BSL qualification but considers herself to have greater practical proficiency through regular professional and social use, including frequent participation in local Deaf club activities. Although originally from Manchester, she, like P1, predominantly uses Tyneside-variety signs as she has lived in the area since starting to acquire BSL.

P2 was selected for the minimal-pair component because the purpose of this stage was exploratory and descriptive, rather than to establish native-speaker norms. Native-level linguistic intuition was therefore not considered essential to the construction of the minimal-pair dataset. Her regular use of BSL in professional and community contexts, familiarity with the local signing environment, and predominantly Tyneside signing made her an appropriate participant for testing whether the NMA contrasts identified in the initial dataset could also be elicited under controlled changes in discourse-pragmatic context. P2 provided informed consent by email before data collection.

The use of only two participants, and the differing linguistic backgrounds of P1 and P2, necessarily limit the generalisability of the findings. This study does not aim to establish population-level norms for BSL question marking, but to provide an exploratory case study demonstrating how discourse-pragmatic NMA contrasts may be represented in annotation.

3.3 *Coding & annotation*

Across both datasets, all utterances were recorded as videos and annotated in ELAN using separate tiers for lexical ID-gloss items and for each NMA. In line with conventional BSL glossing, the lexical signs were represented as an ID-gloss in English capitals. The tiers and terminology used for this follow the first product version of the Annotation standard for Non-Manual elements (ANM 2024–present). Analysis was carried out in Excel for co-occurrence, temporal alignments, scope across the utterance, and pattern clusters.

The combined dataset comprises 16 minimal-pair utterances (8 ISQ-RhQ pairs) covering Wh- and polar questions, alongside the original elicited 12-phrase set. Following qualitative analysis in Excel (see Appendices), six articulators emerged as consistently contrasting across minimal pairs – and thus relevant to question-type distinctions:

- Eyebrows (raised, lowered, inner-raised)
- Eyelids (squinted, widened)
- Head position (forward, backward)
- Head vertical rotation (up, down)
- Torso position (forward, backward)
- Eye gaze (addressee, space)

Other annotated articulators did not pattern consistently with question type, or otherwise did not sufficiently vary across pairs, and were therefore excluded from further analysis. Each retained NMA was initially coded using symbols according to:

- State change – directional transitions to capture dynamic movement with first → second movement (e.g., raised → lowered).
- Scope – alignment with lexical items, phrases, etc.:
 - Token-localised non-manuals with @x (e.g., raised@Wh-sign);
 - Phrase-level non-manuals with [x] (e.g., raised[VP]).

- Sequential coding – non-manuals marking question type in multiple phases coded as sequences with seq (e.g., seq(raised → lowered)[VP]).

This approach allows analysis to capture prosodic contouring, NMA clustering, and alignment with manual lexical structure, preserving discourse-pragmatic distinctions that may otherwise be obscured in flat glossing (Crasborn 2015: 75).

4 Results & analysis

The two datasets (P1, initial elicitation; P2, minimal pairs) serve different methodological purposes. P1’s native-signing productions constitute the primary descriptive dataset from which the NMA patterns discussed in Section 4 are identified. P2’s productions are used only in the minimal-pair component to explore whether the contrasts identified in the initial analysis can also be elicited under controlled changes in discourse-pragmatic context. P2’s data are not treated as evidence of native BSL patterning or used as the basis for generalisations about BSL grammar.

P2’s productions are interpreted cautiously given her non-native acquisition background. They are used here to examine whether the contrasts identified in P1 can be elicited when the manual material is held constant and the intended discourse-pragmatic interpretation is manipulated through contextual prompts. The minimal-pair results therefore provide exploratory support for the analytical dimensions identified below, rather than evidence of native-speaker norms or generalisations about BSL grammar.

4.1 *Results: Patterns in information-seeking questions*

In the phrase-list dataset, information-seeking questions display highly regular non-manual behaviour with clear distinctions between Wh- and polar questions, as claimed in BSL linguistics literature (Sutton-Spence & Woll 1999: 67–68). Patterns in our six NMAs are given in the extract from Appendix 1:

ID-gloss	eyebrows	eyelids	head.position	head.tilt	head.v.rotate	torso.position	eyegaze	mouth.config
YOU ARRIVE UNIVER- SITY HOW	raised VP > lowered Wh	neutral VP > squinted Wh	neutral DP > backward VP > forward Wh	neutral	neutral DP > up VP > down Wh	neutral	addressee	neutral VP > pucker Wh
CLASS FINISH WHAT- TIME	neutral NP > raised VP > lowered Wh	neutral VP > squinted Wh	neutral VP > forward Wh	neutral	neutral NP > up VP > neutral Wh	neutral	addressee	neutral VP > frown Wh
BATH- ROOM WHERE	raised NP > lowered Wh	neutral NP > squinted Wh	neutral NP > backward Wh	neutral	neutral	neutral > backward Wh	addressee	neutral NP > frown Wh
PET YOU HAVE	raised NP > lowered VP	neutral NP > squinted VP	neutral NP > forward VP	neutral	neutral	neutral	addressee	neutral NP > frown VP
COFFEE OR TEA YOU LIKE WHICH	raised NP > inner raised after conj.n > lowered Wh	neutral VP > squinted Wh	neutral NP1 > backward NP2 > forward Wh	neutral NP 1> tilted conjunction > neutral VP	neutral	neutral	addressee	neutral VP > frown Wh
OUTSIDE RAIN	raised AdvP > inner raised VP	widened	backward AdvP > forward VP	neutral	neutral	neutral	addressee	neutral AdvP > frown VP

Extract of ISQs from Appendix 1 – Initial dataset NMA analysis in Excel (see Appendices)

4.1.1 Wh-ISQs

Wh-ISQs show token-level anchoring of non-manual markers, tightly synchronised with the Wh-sign itself. Across all genuine Wh-tokens, a consistent cluster of NMAs frequently appears at the Wh element:

- Eyebrows shift from raised or neutral to lowered at the Wh-sign (see Fig. 5).
- Eyelids squint at the Wh-sign.
- Head position shifts forward or backward, precisely at the Wh-sign.

- Torso position often mirrors head, shifting forward at the Wh.

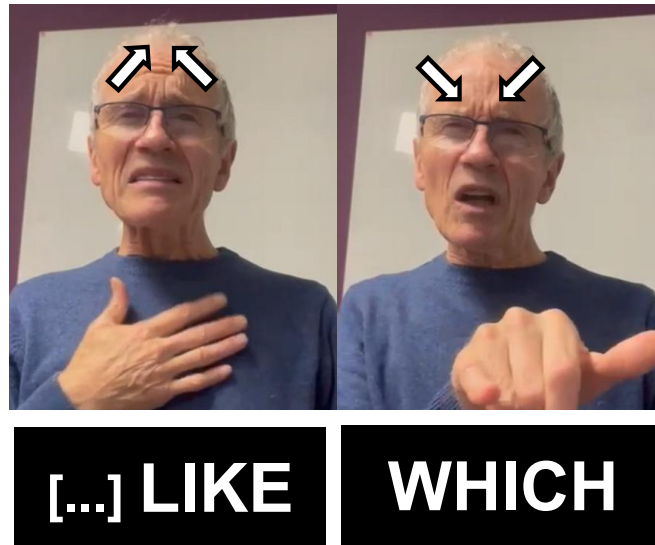


Fig. 5 – Eyebrow lowering at Wh in *COFFEE OR TEA YOU LIKE WHICH*

Crucially for annotation purposes, these markers are not distributed across a clause but instead form a localised interrogative peak: anchored to the Wh-sign. This pattern holds across different Wh elements with different lexical signs (*WHAT, WHO, WHERE, WHEN, HOW*). Minor variation is observed (e.g., occasional raised brows at the Wh instead of lowered), but the anchoring principle remains constant.

These findings support an analysis of BSL marking of Wh-questions as lexically-anchored, where interrogative force is concentrated at the Wh-sign to indicate the purpose of an utterance as a genuine information-seeking question. This is important both for representing in a gloss or annotation and for interpreting the discourse-pragmatic function of NMA clusters annotated in an existing gloss.

4.1.2 Polar ISQs

In contrast, polar ISQs exhibit NMA spreading across the interrogative verb phrase (VP) rather than aligning with a single lexical item. In examples from the initial dataset, such as *PET YOU HAVE* and *OUTSIDE RAIN*, the following patterns are observed:

- Eyebrows can be lowered or inner-raised across the VP (see Fig. 6).
- Eyelids are squinted or widened throughout the VP.
- Head position shifts (typically backwards → forward) from VP start to end.



Fig. 6 – Eyebrow lowering across interrogative VP in PET YOU HAVE

Unlike Wh-ISQs, polar information-seeking questions do not show a single interrogative anchor. Instead, interrogative force prompting a yes/no answer is realised as a clausal prosodic feature, marking the entire verb phrase as interrogative. This, too, is in line with previous BSL literature (Sutton-Spence & Woll 1999: 67–68).

Together, these results demonstrate that genuine questions in BSL do in fact form two internally uniform categories of information-seeking question, distinguished by the scope and alignment of their non-manual articulation.

4.2 Results: Patterns in rhetorical questions

Rhetorical question marking in BSL differs fundamentally from that of information-seeking questions. Rather than the static word- or phrase-level anchoring of ISQs, RhQs across the phrase-list task consistently exhibit multi-stage, sequential trajectories of NMF marking to show pragmatic stance. Importantly for annotating and interpreting annotations of BSL questions, however, RhQs do not form a single homogeneous category. Each rhetorical subtype (RhQA, ARQ, IRQ, CRQ and ERQ) shows a distinct NMA configuration.

These subtypes differ in the construction of the utterance’s rhetorical force: some explicitly stage a question-answer sequence (RhQA), some contain an implied or overt answer (ARQ & IRQ), some depend on an evaluative or contrastive implication (CRQ), whilst others are elliptical and rely heavily on shared common ground (ERQ). The operationalised subtype classifications refer to the intended discourse-pragmatic functions established during stimulus

construction; analysis then examines how these functions are realised through NMA patterning in P1's BSL productions.

ID-gloss	eyebrows	eyelids	head.position	head.tilt	head.v.rotate	torso.position	eyegaze	mouth.config
LAST NIGHT ME DO WHAT ME WON'T TELL- YOU	raised VP1 > lowered VP2	neutral VP1 > squinted VP2	forward AdvP > backward NP1 > forward VP1 > backward VP2	neutral	up AdvP > down DP > up VP1 > down VP2	neutral > forward at Wh word > neutral	addressee	neutral VP1 > frown VP2
HELPING WHO ME	raised VP > lowered NP	neutral VP > squinted NP	forward VP > neutral DP	neutral	up VP > neutral DP	neutral	addressee	neutral VP > smile DP
PIZZA FREE : YOU-WANT : REFUSE : WHO	neutral N > raised AdjP > inner raised VP1 > lowered	neutral NP > widened AdjP > squinted	neutral NP > forward VP1 > neutral VP2	neutral	neutral > up after VP2	neutral	addressee	neutral VP1 > frown VP2
MORE IMPOR- TANT THAN FAMILY WHAT	lowered AdjP > inner raised comparative > lowered Wh	squinted	backward AdjP > forward Wh	neutral	neutral > down Wh	neutral	addressee	neutral AdjP > frown Wh
CARE WHO	lowered	squinted	forward	neutral	neutral	neutral	addressee	neutral VP > frown Wh
BOTHER WHY	lowered	squinted	backward VP > forward Wh	tilted VP > neutral Wh	up VP > neutral Wh	neutral	addressee	frown

Extract of RhQs from Appendix 2 – Initial dataset NMA analysis in Excel (see Appendices)

4.2.1 Narrative behaviour RhQs (RhQAs, ARQs & IRQs)

RhQAs, ARQs and IRQs share a reliance on discourse development beyond the interrogative phrase itself, though each differs in the construction of this development. RhQAs explicitly contain a question followed by an answer; ARQs make the answer recoverable from the question itself; and IRQs construct an implied conclusion through an evaluative or implied

hypothetical scenario. This development past the interrogative form thus predicts that NMA marking may extend beyond the Wh-element to track changes in discourse role, emphasis or stance.

RhQAs

Rhetorical question-answer sequences are common structures for co-construction in BSL, comprising an attention-keeping Wh-sign and immediate self-answer (Schmidt-Radefeldt 1977: 379–380). For example, *I NEED BUY FISH FOR MY CATS – WHY – CAT BIRTHDAY SPECIAL DINNER*. RhQA non-manual marking in this dataset showed NMA marking as extended sequences spanning the entire interrogative clause and beyond. In the dataset example *LAST NIGHT ME DO WHAT – ME WON'T TELL-YOU*, the NMAs show:

- Eyebrows raised throughout the Wh-phrase, lowered during self-answer (see Fig. 7).
- Eyelids squint during the self-answer phase.
- Head position cycles forward → backwards → forward during the Wh-phrase, with backward self-answer.



Fig. 7 – Extended eyebrow sequence spanning Q-A clauses in *LAST NIGHT ME DO WHAT – ME WON'T TELL-YOU*

The NMA patterns here are clearly sequential rather than static, like those of both ISQ subtypes. The rhetorical question essentially functions as a way to stage a narrative to maintain addressee attention, rather than to solicit information.

ARQs

Auto-responsive RhQs in BSL can have similar surface forms. In the dataset example, *HELPING WHO ME* (meaning “Who will help, if not me?”) could have the same lexical signs in an RhQA utterance, *HELPING WHO – ME* (meaning “Who is helping? Me.”). Non-manual marking is therefore hugely important to differentiate pragmatic stance to understand the signer’s intent. In this ARQ, the auto-responsive trigger aims to imply that “no one will help, if not me.” In *HELPING WHO ME*:

- Eyebrows raise during interrogative VP, then lower at the NP *ME* (see Fig. 8)
- Head shaking appears at the NP.
- Head position shifts forward, signalling assertion, for the addressee to pick up the auto-responsive implication.

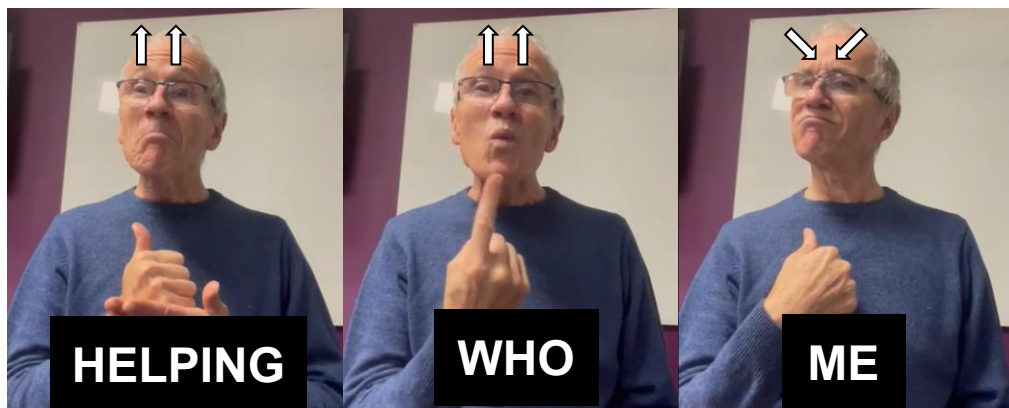


Fig. 8 – Eyebrow raise across interrogative VP and lower at self-answer in *HELPING WHO ME*

NMAs here are especially stance-expressive cues (head shake, head position) to indicate ARQ meaning from RhQa, and also differ this type of RhQ from all ISQ marking. The placement of NMA shift at the auto-responsive trigger *ME* marks the inevitability or self-evidence of the intended meaning.

IRQs

The implicative RhQ in this dataset, *PIZZA FREE : YOU-WANT : NO, REFUSE : WHO*, also involves role-shift, but additionally displays NMF sequencing to imply desirability of the

emphasised item. The NMFs here are anchored to salient lexical items much like ISQs, but they form a sequence rather than aligning only to the Wh-sign or interrogative clause:

- Eyebrows and eyelids go up at the emphasised item *FREE*.
- Inner raised eyebrows for questioning character role shift → lowered for answering character role-shift (see Fig. 9).
- Eyebrows remain lowered after role-shift end, but firm eye gaze at the addressee confirms that the narrative has finished.

The non-manual marking here highlights the emphasised item as having a quality that the role-shifted addressee rejects. The following Wh-sign indicates improbability of this scenario, implying via rhetorical stance that this quality cannot be rejected.



Fig. 9 – Eyebrow inner raise for role shift lowered for role-shift response and Wh in *PIZZA FREE : YOU WANT : NO, REFUSE : WHO*

4.2.2 Other RhQ subtypes (CRQs & ERQs)

As per the present dataset patterning, comparative rhetorical questions and elliptical rhetorical questions make up a second cluster of discourse-pragmatic structures in BSL. Unlike other RhQs, these subtypes do not involve narrative behaviours of discourse

development like overt self-answering or discourse staging through role-shift. Instead, they are marked by locally anchored, stance-driven NMAs aligned with evaluative or contrastive elements.

CRQs

Comparative RhQs pattern around contrastive focus. In *MORE IMPORTANT THAN FAMILY WHAT*, the defining features that differentiate it from a genuine ISQ are:

- Inner-raised eyebrows aligned with the contrastive item *FAMILY*, where they would be raised for a genuine ISQ (see Fig. 10).
- Head movement shifts backwards and then forward, signalling evaluative stance.
- Eyelid squinting and frown contribute to emphasis rather than desire for information.



Fig. 10 – Eyebrow inner raise at contrastive item *FAMILY* lowered at *Wh* in *MORE IMPORTANT THAN FAMILY WHAT*

In this example, non-manual marking serves to highlight the speaker's evaluation of the comparison they are presenting. This frames the question as rhetorical by foregrounding contrast rather than real uncertainty.

ERQs

Elliptical RhQs retain an interrogative form, but their intended proposition is largely recoverable from shared knowledge, rather than supplied through an explicit answer. Their NMA patterning is therefore particularly relevant to the question of whether rhetorical force can be conveyed without the eyebrow-raising pattern commonly associated with true interrogative marking. ERQs remain internally consistent across both examples in the dataset. The utterances *CARE WHO* and *BOTHER WHY*, despite having different *Wh*-signs, exhibit a stable bundle of non-manual markers:

- Lowered eyebrows and squinted eyelids throughout (see Fig. 11).
- Forward head position.
- Frowning mouth configuration.

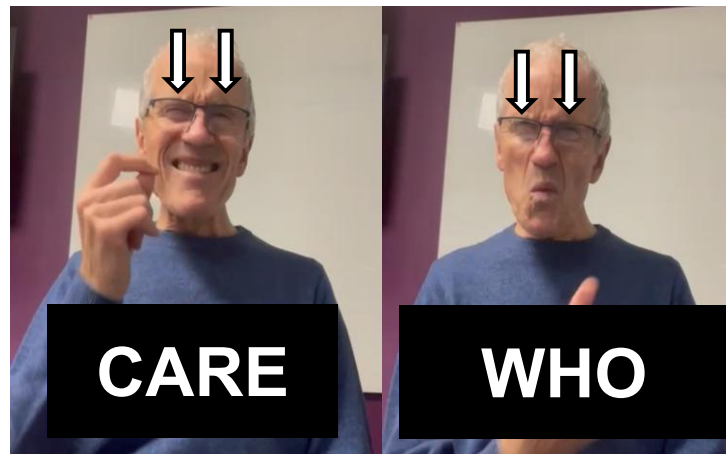


Fig. 11 – Eyebrows lowered throughout interrogative VP

Whilst the mouth frown may be paralinguistic to show affect (as Deuchar 2013: 92 suggests), the other NMAs nevertheless index a dismissive stance, reflecting the elliptical intent that “no one cares”; “one should not bother.” They also directly contradict the assumption (given even in BSL learning resources created by Deaf signers) that rhetorical questions are marked by raised eyebrows (see Fig. 1; Sutton-Spence & Woll 1999: 68).

4.3 Minimal-pair comparison

The minimal-pair dataset provides a controlled comparison of information-seeking and rhetorical question marking. Whereas the initial dataset compared different question types and rhetorical subtypes across different lexical items, the minimal-pair elicitation held

manual content as constant as possible, changing only the discourse-pragmatic context. The 16 utterances comprised eight ISQ-RhQ pairs, including both Wh- and polar questions.

The comparison broadly supports the distinction identified in P1: the difference between ISQs and RhQs is not restricted to the presence or absence of any individual non-manual marker alone, but is encoded by the combination, sequence, spreading and scope of multiple NMFs. This is particularly apparent in the eyebrows and eyelids, head position, vertical head rotation, torso position, and eye gaze. The minimal-pair analysis therefore provides additional support for treating these dimensions as analytically relevant to question-type annotation, not establishing them as categorical properties of BSL as a whole.

4.3.1 Eyebrows and eyelids

Eyebrow behaviour provides one of the clearest contrasts between matched ISQ and RhQ productions in this dataset. Genuine questions generally show lowered eyebrows at the interrogative element or across the interrogative phrase, whereas rhetorical productions more often introduce raised or inner-raised configurations at discourse-pragmatically salient points.

Operatio nalised subtype	Wh- /polar	ID-gloss	eyebrows	eyelids
ISQ	Wh	YOU WANT WHAT	lowered	neutral
RhQ	Wh	YOU WANT WHAT	lowered > inner raised Wh	neutral > widened after VP
ISQ	Wh	KEYS WHERE	lowered	squinted NP > neutral Wh
RhQ	Wh	KEYS WHERE	raised NP > neutral Wh	widened
ISQ	Wh	HELP-YOU WHO	lowered	neutral
RhQ	Wh	HELP-YOU WHO – ME	lowered	squinted VP > neutral Wh > widened self-answer
ISQ	Polar	YOU FINISH	lowered	neutral
RhQ	Polar	YOU FINISH	lowered	neutral
ISQ	Polar	YOU UNDERSTAND	neutral DP > lowered VP	neutral
RhQ	Polar	YOU NOT-UNDERSTAND – SHOCK	inner raised	neutral VP > widened AdjP
ISQ	Wh	CLASS FINISH WHEN	neutral VP > lowered Wh	neutral VP > squinted Wh
RhQ	Wh	CLASS FINISH WHEN – 7 O'CLOCK REMEMBER	lowered VP > inner raised after Wh	neutral VP > widened after Wh

ISQ	Wh	BATHROOM WHERE	neutral NP > lowered Wh	neutral NP > squinted Wh
RhQ	Wh	BATHROOM WHERE	lowered	squinted NP > widened Wh
ISQ	Wh	RAIN FINISH WHEN	neutral VP > raised Wh	widened NP > neutral VP > widened Wh
RhQ	Wh	RAIN FINISH WHEN	neutral VP > raised Wh	neutral VP > widened Wh

Table 2 – Minimal pair analysis in Excel by eyebrow and eyelid configuration

For example, in *YOU WANT WHAT*, the ISQ is marked by lowered eyebrows throughout, whereas the RhQ begins with lowered eyebrows across the verb phrase, shifting to inner-raised eyebrows at the Wh-sign. Similarly, in *KEYS WHERE*, the ISQ shows lowered eyebrows throughout, whilst the RhQ marks the noun with raised eyebrows before returning to neutral at the Wh-sign. BSL question marking therefore cannot simply be reduced to “lowered” versus “raised” eyebrows, supporting Sutton-Spence and Woll’s (1999: 68) suggestion, but between a relatively predictable interrogative configuration (lowered throughout the question phrase) and a more dynamic configuration associated with rhetorical stance.

Eyelid behaviour shows a related, although less categorical, contrast. Wh-ISQs frequently remain neutral or otherwise squint at the Wh-sign or the object of the question. Rhetorical Wh-questions, however, show widening or a sequence of widening and squinting. In *KEYS WHERE*, for example, the ISQ shows squinting during the object NP before returning to neutral at the Wh-sign, while the RhQ shows widened eyelids throughout. In *HELP-YOU WHO*, the RhQ instead displays squinting during the VP, neutral eyelids at the Wh-sign and widening during the self-answer.

4.3.2 Summary of the minimal-pair comparison

Across the six NMAs identified as consistently patterning with pragmatic stance (see Appendix 2 for all NMAs analysed), the minimal-pair data support the interpretation that ISQ-RhQ differences in BSL are encoded through patterns of NMA sequencing, alignment and scope, rather than through a single invariant rhetorical marker. ISQs tend towards stable addressee orientation and local or phrase-aligned interrogative marking, whereas RhQs more often show changes in NMA configuration across the utterance, particularly where discourse stance is introduced or reinforced.

4.4 *Key takeaways*

The patterns from the results of P1’s phrase-list dataset support the following conclusions about at least one dialect of real, native BSL signing:

- i. Wh-ISQs are characterised by tightly localised NMF anchoring at the Wh-sign and form a highly uniform category.
- ii. Polar ISQs display VP-scoped NMF spreading, marking interrogative force at the clause level.
- iii. RhQs are not a single category: each subtype exhibits its own non-manual behaviours to demonstrate stance and intent.
- iv. Stance-expressive non-manuals are the primary diagnostic distinguishing RhQs from ISQs, and RhQs from each other.
- v. Sequence and anchoring behaviours are informative analytic dimensions for capturing question type in BSL.

P2’s minimal-pair comparison strengthens the central finding of the initial elicitation that BSL question type is encoded by sequence, trajectory, scope and anchoring of multiple NMFs depending on the stance and role of the utterance. In particular, the rhetorical productions demonstrate that strings of NMFs can encode the development or reinforcement of stance across an utterance.

Taken together, these results demonstrate that BSL discourse-pragmatics cannot always be adequately represented using static, token-anchored glossing conventions. Instead, they require an annotation approach capable of encoding temporal change, scope, and stance. This supports an annotation framework allowing for sequential and scope-sensitive labelling, rather than reducing each articulator to a single categorical value. The coding scheme developed in Section 5 below was specifically designed to preserve these state changes, temporal alignments and sequential patterns.

5 Proposals & discussion

5.1 *Framework proposals*

This section proposes an annotation framework for BSL that allows question type marking to be represented, grounded in the empirical findings of this study. Rather than introducing a new system, the framework refines existing practices by specifying which NMAs should be annotated for discourse-pragmatic question research, and how. Across minimal-pair analysis, six NMAs were shown to pattern consistently with question type: eyebrows, eyelids, head position, head vertical rotation, torso position, and eye gaze. The framework thus prioritises selective annotation of these six NMAs specifically for question-type analysis for a function-driven practice.

5.1.1 *ELAN method*

For digital annotation methods, this study recommends continuing conventional use of ELAN, specifically in conjunction with ANM (2024–present) non-manual annotation standards. No structural modification to ANM is required. Instead, for practical feasibility, where research focuses on BSL questions, the framework proposes restricting articulator tiers to the six empirically motivated NMAs determined as markers of question types. This reduces annotation of affective features, signing style differences or other features that weren’t shown to pattern consistently with question type in the present dataset. Each NMA is annotated on a dedicated daughter tier to the *non-manuals.annotation* tier, temporally aligned with the ID-gloss tier to allow scope (token-level vs. phrasal, etc.), anchoring, and sequencing to be represented directly, as shown in Fig 12:

	00:00:20.000	00:00:21.000	00:00:22.000	00:00:23.000	00:00:24.000	00:00:25.000
ID-gloss [56]	HELP-YOU	WHO		HELP-YOU	WHO	ME
non-manuals.anno [19]	3G			3R		
p.eyebrows [34]	lowered			lowered		
p.eyelids [35]	neutral			squinted	neutral	widened
p.head.forward-bac [37]	neutral	forward		neutral	forward	
p.head.rotated.up- [31]	rotated-down		neutral	neutral		
p.torso.forward-bac [35]	neutral	forward		neutral	forward	
p.eyegaze [27]	addressee			addressee		

Fig. 12 – ANM’s ELAN tier template, narrowed to the present articulators of interest

This approach preserves simultaneous NMA behaviours and temporal dynamics, enabling analysts to capture sequential trajectories that distinguish RhQs from ISQs, and beyond. In remaining compatible with ELAN conventions, ANM guidelines (ANM 2024–present) and ID-gloss practices (Cormier et al. 2016), the digital framework ensures easy integration with existing BSL corpora and tools.

5.1.2 Written methods

To improve on the limitations of static written glosses, two complementary written formats are proposed: one easier to interpret and one easier to construct.

The first is a structured tabular gloss, expanding the traditional interlinear gloss (Comrie et al. 2008) into a table with cells for each lexical sign. The ID-gloss forms the middle row of the table, with the column number equivalent to the number of lexical signs, plus one for row labels. Each additional row corresponds to a single NMA, with the intricate facial articulators positioned above the ID-gloss line, and head and body articulators below. Where an NMA is maintained across multiple signs, cells are merged horizontally to visually represent scope. An example is in Table 2:

brows	neutral	raise	neutral	lower
eyelids	neutral	wide	neutral	squint

gaze	addressee					
ID-gloss	PIZZA	FREE	YOU	WANT	NO, REFUSE	WHO
head pose	neutral		forward		shake	
head rotate	neutral				up	
torso	neutral					
Metalanguage	“Refusing free pizza – who would?”					
stance	/rhetorical					
role	/implicative					

Table 3 – Tabular gloss example with PIZZA FREE : YOU WANT : NO, REFUSE : WHO

Below the table, the metalanguage translation is provided as in a three-line gloss plus, optionally, explicit markers to note stance (e.g., /rhetorical) and discourse role (e.g., /implicative). This layout mirrors ELAN’s multi-tier logic and temporal alignment whilst being slightly more human-readable.

The second written model is a linear string gloss of non-manuals, designed for efficiency of annotation. In this format, each articulator is represented as a sequence of state changes (e.g., neutral → raise → lower), with lexical anchoring marked by @ (e.g., raise@FREE) and scope marked by square brackets (e.g., lower[NO, REFUSE : WHO]. Arrows indicate sequential change, reflecting the dynamic nature of NMAs.

Whilst less immediately interpretable (shown in Fig. 13), this format is compact, consistent, and easily transferable to spreadsheets or appendices, making it suitable for larger datasets that might otherwise take a lot of time and effort to annotate using the digital or tabular model.

PIZZA FREE : YOU WANT : NO, REFUSE : WHO	
brows:	neutral → raise@FREE → neutral → lower[NO, REFUSE : WHO]
eyelids:	neutral → wide@FREE → neutral → squint[NO, REFUSE : WHO]
gaze:	addressee
head pose:	neutral → forward[YOU WANT] → shake[NO, REFUSE : WHO]
head rotate:	neutral → up[NO, REFUSE : WHO]
torso:	neutral
“Refusing free pizza – who would?” stance: /rhetorical role: /implicative	

Fig. 13 – String gloss example with PIZZA FREE : YOU WANT : NO, REFUSE : WHO

Both written formats encode the same analytical information, differing only in their compromises between interpretability and efficiency.

5.2 Discussion & limitations

This framework improves clarity and precision in BSL question annotation by directly addressing three weaknesses identified in existing sign language glossing practices: the flattening of non-manuals into static labels; the lack of scope representation; and the conflation of form with discourse-pragmatic behaviours. By encoding state change, scope and anchoring explicitly, the proposed models capture the prosodic and stance-related functions of NMAs that distinguish both Wh- and polar information-seeking questions from rhetorical questions and their subtypes. Crucially, the framework remains consistent with existing systems: preserving ID-gloss conventions (Cormier et al. 2016) and aligning with ANM standards (ANM 2024–present). Rather than replacing current practices, it offers a principled refinement for researchers of discourse-pragmatic phenomena in BSL.

This framework is, however, intentionally task-specific. The six NMAs identified here are those shown to be meaningful for question-type encoding in a small, dialect-specific dataset. This study does not claim to exhaust all grammatical or pragmatic uses of non-manuals in BSL: only to illustrate a possible refining model by using a small sample of case-study, dialectal data. The limited number of participants restricts generalisability, and further work

is needed to test and continue to refine this framework across signers, regions, and interactional contexts.

Nevertheless, as an empirically-grounded case study, the framework demonstrates how selective, principled annotation can enhance the descriptive adequacy of BSL glossing without sacrificing usability.

6 Conclusion

The present study set out to address a methodological gap in British Sign Language research: the lack of a consistent, empirically-grounded approach to representing non-manual marking of discourse-pragmatic behaviour in annotation and glossing. Whilst non-manual articulators are widely recognised in both BSL linguistics literature and formal BSL pedagogical resources (see Fig. 1; Sutton-Spence & Woll 1999: 65–80; Deuchar 2013: 92), existing glossing conventions often flatten this information or treat rhetorical questions as a homogeneous residual category (Frank 1990: 737; Sutton-Spence & Woll 1999: 70). As a result, discourse-pragmatic distinctions essential to linguistic analysis of signer stance and intent risk being obscured.

Through controlled elicitation and minimal-pair analysis, this study identified six non-manual articulators that consistently pattern with question type in BSL: eyebrows, eyelids, head position, head vertical rotation, torso position, and eye gaze. The results demonstrate that information-seeking and rhetorical questions are distinguished not by isolated markers (e.g., “brows raised for polar and rhetorical questions and lowered for Wh-questions”), but by structured clusters of various non-manual articulators, distributed over different scopes of time and aligned with different parts of the utterance. Importantly for discourse-pragmatic research, rhetorical questions do not form a single category in BSL, but exhibit at least five distinct non-manual configurations reflecting stance and discourse function: RhQA, ARQ, IRQ, CRQ, and ERQ.

Building on these findings, this study proposed a task-specific annotation framework that refines and fits into existing practices. By remaining compatible with ELAN and established, ID-gloss conventions (Cormier et al. 2016), the framework offers a practical means of improving clarity and precision in the annotation of BSL question types. More broadly, this work demonstrates how selective, principled annotation can enhance the descriptive accuracy of sign language glossing whilst preserving usability and comparability across research contexts. The models proposed are also flexible in their tiers: for example, research on a different element of BSL discourse could adapt these models for articulators found to be meaningful to that discourse element.

Appendices

Operatio nalised subtype	ID-gloss	eyebrows	eyelids	head.position	head.tilt	head.v.rotate	torso.position	eyegaze	mouth.config
ISQ (Wh)	YOU ARRIVE UNIVERSITY HOW	raised VP > lowered Wh	neutral VP > squinted Wh	neutral DP > backward VP > forward Wh	neutral	neutral DP > up VP > down Wh	neutral	addressee	neutral VP > pucker Wh
ISQ (Wh)	CLASS FINISH WHAT-TIME	neutral NP > raised VP > lowered Wh	neutral VP > squinted Wh	neutral VP > forward Wh	neutral	neutral NP > up VP > neutral Wh	neutral	addressee	neutral VP > frown Wh
ISQ (Wh)	BATHROOM WHERE	raised NP > lowered Wh	neutral NP > squinted Wh	neutral NP > backward Wh	neutral	neutral	neutral > backward Wh	addressee	neutral NP > frown Wh
ISQ (Polar)	PET YOU HAVE	raised NP > lowered VP	neutral NP > squinted VP	neutral NP > forward VP	neutral	neutral	neutral	addressee	neutral NP > frown VP
ISQ (Wh)	COFFEE OR TEA YOU LIKE WHICH	raised NP > inner raised after conj.n > lowered Wh	neutral VP > squinted Wh	neutral NP1 > backward NP2 > forward Wh	neutral NP 1> tilted conjunction > neutral VP	neutral	neutral	addressee	neutral VP > frown Wh
ISQ (Polar)	OUTSIDE RAIN	raised AdvP > inner raised VP	widened	backward AdvP > forward VP	neutral	neutral	neutral	addressee	neutral AdvP > frown VP
RhQ (RhQA)	LAST NIGHT ME DO WHAT – ME WON'T TELL- YOU	raised VP1 > lowered VP2	neutral VP1 > squinted VP2	forward AdvP > backward NP1 > forward VP1 > back VP2	neutral	up AdvP > down DP > up VP1 > down VP2	neutral > forward at Wh word > neutral	addressee	neutral VP1 > frown VP2
RhQ (ARQ)	HELPING WHO ME	raised VP > lowered NP	neutral VP > squinted NP	forward VP > neutral DP	neutral	up VP > neutral DP	neutral	addressee	neutral VP > smile DP
RhQ (IRQ)	PIZZA FREE : YOU-WANT : NO REFUSE : WHO	neutral N > raised AdjP > lowered	neutral NP > widened AdjP > squinted	neutral NP > forward VP1 > neutral VP2	neutral	neutral > up after VP2	neutral	addressee	neutral VP1 > frown VP2
RhQ (CRQ)	MORE IMPORTANT THAN FAMILY WHAT	lowered AdjP > inner raised comparative > lowered Wh	squinted	backward AdjP > forward Wh	neutral	neutral > down Wh	neutral	addressee	neutral AdjP > frown Wh
RhQ (ERQ)	CARE WHO	lowered	squinted	forward	neutral	neutral	neutral	addressee	neutral VP > frown Wh
RhQ (ERQ)	BOTHER WHY	lowered	squinted	backward VP > forward Wh	tilted VP > neutral Wh	up VP > neutral Wh	neutral	addressee	frown

Appendix 1 – Initial dataset NMA pattern analysis in Excel

Operationalised/polarised/polarised/polarised/polarised/polarised/polarised/polarised/polarised/polarised/polarised										
Operationalised/polarised/polarised/polarised/polarised/polarised/polarised/polarised/polarised/polarised/polarised	Wh	ID-gloss	eyebrows	eyelids	head.position	head.tilt	head.v.rotate	torso.position	eyegaze	mouth.config
ISQ	Wh	YOU WANT WHAT	lowered	neutral	neutral	neutral > tilted VP > neutral	neutral > neutral	neutral > backward after V	addressee	neutral
RhQ	Wh	YOU WANT WHAT	lowered > inner raised Wh	neutral > widened after VP	neutral > forward after VP	neutral	neutral	forward	addressee	neutral
ISQ	Wh	KEYS WHERE	lowered	squinted NP > neutral Wh	neutral	neutral	neutral	neutral	addressee	neutral > frown Wh
RhQ	Wh	KEYS WHERE	raised NP > neutral Wh	widened	neutral NP > forward Wh > backward Q end	neutral	rotated up Q > rotated down Q end	neutral NP > forward Wh > backward Q end	space > addressee NP > space > addressee Wh	neutral
ISQ	Wh	HELP-YOU WHO	lowered	neutral	neutral VP > forward Wh	tilted	rotated down Q > neutral end	forward	addressee	neutral
RhQ	Wh	HELP-YOU WHO – ME	lowered	squinted VP > neutral Wh > widened self-answer	neutral VP > forward after Wh	neutral	neutral	neutral VP > forward after Wh	addressee	neutral
ISQ	Polar	YOU FINISH	lowered	neutral	neutral DP > forward VP	neutral	neutral	neutral DP > forward VP	addressee	neutral Q > pout Q end
RhQ	Polar	YOU FINISH	lowered	neutral	neutral DP > forward VP	neutral	neutral	backward DP > forward VP	addressee	neutral
ISQ	Polar	YOU UNDERSTAND	neutral DP > lowered VP	neutral	neutral DP > forward VP	neutral DP > neutral > rotated > tilted VP down VP	neutral	neutral	addressee	neutral
RhQ	Polar	YOU NOT-UNDERSTAND – SHOCK	inner raised	neutral VP > widened AdjP	neutral DP > backward VP > forward AdjP	neutral	neutral VP > rotated up AdjP	neutral VP > forward AdjP	space > addressee	neutral
ISQ	Wh	CLASS FINISH WHEN	neutral VP > lowered Wh	neutral VP > squinted Wh	neutral VP > forward Wh	neutral	neutral	neutral VP > forward Wh	addressee	neutral
RhQ	Wh	CLASS FINISH WHEN – 7 O'CLOCK REMEMBER	lowered VP > inner raised after Wh	neutral VP > widened after Wh	neutral VP > forward after Wh	neutral	neutral > rotated down Q end	neutral VP > forward after Wh	addressee	neutral
ISQ	Wh	BATHROOM WHERE	neutral NP > lowered Wh	neutral NP > squinted Wh	neutral	neutral	neutral	neutral	addressee	neutral
RhQ	Wh	BATHROOM WHERE	lowered	squinted NP > widened Wh	neutral	neutral	rotated up	neutral	space NP > addressee > space Wh	neutral NP > frown > neutral Wh > frown
ISQ	Wh	RAIN FINISH WHEN	neutral VP > raised Wh	widened NP > neutral VP > widened Wh	neutral VP > forward Wh	neutral	neutral	neutral VP > forward Wh	space NP > addressee after VP	neutral Q > pout Q end
RhQ	Wh	RAIN FINISH WHEN	neutral VP > raised Wh	neutral VP > widened Wh	neutral VP > forward Wh	neutral	neutral NP > rotated up Wh > neutral Q end	neutral NP > forward after VP	addressee	neutral

Appendix 2 – Minimal pair dataset NMA pattern analysis in Excel

1. Wh-Question: WHAT

Genuine:

“WHAT YOU WANT?”

(What do you want?)

Elicitation scenario: “You’re at home with a friend. You’ve offered them something to drink, so they are looking in your drinks cupboard. You ask your friend what they want.”

Rhetorical (ERQ):

“WHAT YOU WANT?”

(What do you even want?; what’s your problem?) Dismissive stance

Elicitation scenario: “You’re trying to work and your friend keeps walking around, looking irritated and bored. They roll their eyes at you. Fed up, you ask your friend what they even want.”

2. Wh-Question: WHERE

Genuine:

“KEY WHERE?”

(Where are the keys?)

Elicitation scenario: “You’re about to leave the house. You can’t find your keys and ask your housemate where they left them.”

Rhetorical (ERQ):

“KEY WHERE?”

(Oh, we need to open the door? Where’s the key, then? Obviously lost.) Accusatory stance

Elicitation scenario: “Your roommate insists they remembered to take the key with them, but the key has clearly gone missing and you’re now locked out. You ask, annoyed, where the key IS, then.”

3. Wh-Question: WHO

Genuine:

“WHO HELP YOU?”

(Who helped you?)

Elicitation scenario: “Your friend has finished a difficult school project with the help of a teacher. You’re curious and want to know which teacher helped them.”

Rhetorical (ARQ):

“WHO HELP YOU? ME!”

(And who helped you then? Me!) Emphatic stance

Elicitation scenario: “Your friend is bragging about their success – without mentioning that YOU helped them with it. You challenge them about who helped them, and self-answer ‘Me!’.

4. Polar Question: VP-anchored

Genuine:

“YOU FINISH?”

(Have you finished?)

Elicitation scenario: “You are a teacher. Your student is doing some classwork, and raises their hand. You ask if they’ve finished the work, so you can mark it.”

Rhetorical (ERQ):

“YOU FINISH?”

(Oh, okay, have you finished, then? No, of course you haven’t.)

Elicitation scenario: “You are a teacher. Your student is obviously nowhere near finished with their schoolwork, but they are talking to their friend and being disruptive. You challenge them and ask if they’ve finished, knowing they haven’t.”

5. Polar Question: Negation

Genuine:

“YOU-NOT UNDERSTAND?”

(Do you not understand?)

Elicitation scenario: “You’re explaining something complicated to someone. They look confused. You ask them if they don’t understand what you’re saying.”

Rhetorical (IRQ or attitude):

“YOU-NOT UNDERSTAND?”

(*Oh, wow, YOU don’t understand? Obviously. As usual.*) Dismissive stance

Elicitation scenario: “You’re explaining something to someone, but they aren’t listening. Later, they ask you to explain again because they don’t understand. Annoyed, you sarcastically ask, ‘Really, you don’t understand?!’, knowing it’s their own fault because they didn’t listen.”

6. Temporal Wh-Question

Genuine:

“CLASS FINISH WHEN?”

(*When does class finish?*)

Elicitation scenario: “You want to make plans for the evening and genuinely ask when class finishes.”

Rhetorical (RhQA):

“CLASS FINISH WHEN? WE MEET? CAN’T BEFORE CLASS FINISH.”

(*You want to meet at 6pm? Well, when does class finish? That’s right, 7pm. We can’t meet until class has finished.*) Declarative stance

Elicitation scenario: “Your classmate forgets that class finishes at 7pm, and asks to meet at 6pm. You prompt them by asking WHEN class finishes, and answer ‘7pm’, reminding your friend that you can’t meet until then.”

7. Locative Wh-question

Genuine:

“BATHROOM WHERE?”

(*Where’s the bathroom?*)

Elicitation scenario: “You enter a building for the first time and genuinely don’t know where the bathroom is. You ask an employee.”

Rhetorical (IRQ):

“BATHROOM WHERE?”

(*Gesturing to an obvious ‘Bathroom’ sign: Where’s the bathroom? *gesture* I wonder...*) Incredulous stance

Elicitation scenario: “Someone asks you where the bathroom is while standing directly next to a huge sign pointing to the bathroom. You point at the sign and sarcastically ask, “Yeah, where IS the bathroom?”

8. Conditional Wh-Question

Genuine:

“RAIN STOP WHEN?”

(*When will the rain stop?*)

Elicitation scenario: “You’re planning to go outside but it’s raining. You ask when the rain will stop out of genuine curiosity.”

Rhetorical (ERQ / frustration):

“RAIN STOP WHEN?” Dismissive stance

Elicitation scenario: “There has been non-stop rain for days, and no one knows when it will stop. Someone is making plans for after the rain stops. You challenge them and sarcastically ask WHEN the rain will stop.”

References

Annotation standard for Non-Manual elements in visual communication (ANM). First product version. 2024–Present. Last accessed 30/12/2025, from: <https://nonmanuals.net/>.

Bauer, L. 2007. ‘Glosses’. In *The linguistics student’s handbook*. 2nd ed. Edinburgh: Edinburgh University Press. 185–189.

Comrie, B., Haspelmath, M., and B. Bickel. 2008. *The Leipzig Glossing Rules: Conventions for interlinear morpheme-by-morpheme glosses*. Department of Linguistics of the Max Planck Institute for Evolutionary Anthropology: Max Planck Institute for Evolutionary Anthropology.

Cormier, K., Crasborn, O. and R. Bank. 2016. ‘Digging into Signs: Emerging Annotation Standards for Sign Language Corpora’. *7th Workshop on Representation and Processing of Sign Languages: Corpus Mining*.

Crasborn, O. 2015. ‘Transcription and notation methods’. In *Research methods in sign language studies: a practical guide*. (1st ed.). Somerset. Wiley. 75–88.

Dehé, N. and B. Braun. 2020 ‘The prosody of rhetorical questions in English’. In *English Language and Linguistics* 24(4). Cambridge: Cambridge University Press. 607–635.

Deuchar, M. 2013. *British sign language*. Abingdon, Oxon: Routledge.

Frank, J. 1990. ‘You call that a rhetorical question?: Forms and functions of rhetorical questions in conversation’. In *Journal of pragmatics* 14(5). North-Holland: Elsevier. 723–738.

Ippolito, M. 2021. ‘The Contribution of Gestures to the Semantics of Non-Canonical Questions’. In *Journal of Semantics (Nijmegen)* 38(3). 363–392. Last accessed 20/11/2025, from: <https://doi.org/10.1093/jos/ffab007>.

Schmidt-Radefeldt, J. 1977 ‘On so-called “rhetorical” questions’. In *Journal of pragmatics* 1(4). North-Holland: Elsevier. 375–392.

Sutton-Spence, R. and B. Woll. 1999. ‘The linguistics of British Sign Language: an introduction’. Cambridge: Cambridge University Press.