

## **Cleft *wh*-questions as a type of non-canonical questions in Catalan Sign Language (LSC)**

*[Perguntas Q clivadas como um tipo de pergunta não-canónica na Língua de Sinais Catalã (LSC)]*

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**ABSTRACT:** This work focuses on one of the types of non-canonical *wh*-questions in Catalan Sign Language (LSC): cleft *wh*-questions. In opposition to canonical *wh*-questions, which are used as default in purely information-seeking contexts, non-canonical ones have a more restricted distribution due to contextual conditions of use. Cleft *wh*-questions are attested and analyzed here for LSC for the first time based on a particular elicitation context aimed at disambiguating *wh*-questions with two animate arguments of the same type (animate). The construction is characterized by a bi-causal structure in which the first part of the sentence is a topic sentence marked with raised eyebrows (re), and the second part features a pronoun referring back to the subject or the object of the topic clause, followed by a *which*- or *who*-phrase. Unlike the structure proposed for American Sign Language by Abner (2011), LSC realizes the cleft as a bi-clausal structure formed by a topic clause and a *wh*-copular clause, and *wh*-movement happens within the copular clause.

**KEYWORDS:** Catalan Sign Language (LSC); cleft *wh*-questions; non-canonical questions; biclausal *wh*-questions.

**RESUMO:** Este trabalho foca um tipo de perguntas Q não canônicas na Língua de Sinais Catalã (LSC): as perguntas Q clivadas. Diferentemente das perguntas canônicas, que são usadas em contextos de procura de informação, as não canônicas têm uma distribuição mais restrita devido às condições contextuais de uso. As perguntas Q clivadas são atestadas e analisadas aqui na LSC pela primeira vez com base num contexto de elicitación que visa desambiguar perguntas Q com dois argumentos animados do mesmo tipo. A construção é caracterizada por uma estrutura bi-oracional, em que a primeira parte da frase é uma frase topicalizada marcada com sobrelhas levantadas, e a segunda parte apresenta um pronome que remete para o sujeito ou o objeto da oração topicalizada, seguido de uma forma do tipo *que* ou *quem*. Diferentemente da estrutura proposta para a Língua de Sinais Americana (ASL) por Abner (2011), a LSC realiza a clivagem como uma estrutura bi-oracional formada por uma oração topicalizada e uma oração copulativa com uma forma Q, e o movimento Q acontece dentro da oração copulativa.

**PALAVRAS-CHAVE:** Língua de Sinais Catalã (LSC); perguntas Q clivadas; perguntas não canônicas; perguntas Q bi-oracionais.

## Introduction

This paper aims at studying cleft *wh*-questions as a type of non-canonical question in LSC, which can be used to disambiguate subject and object *wh*-questions in a context where there are two referents of the same kind (animate, thus reversible).

The paper is organized as follows: in Section 2, we present an overview of canonical and non-canonical questions in LSC. Section 3 focuses on cleft *wh*-questions and looks at structural ambiguities in interrogatives and how cleft *wh*-questions can help to disambiguate it both in spoken and signed languages. Section 4 introduces the motivation for this study on cleft *wh*-questions in LSC and presents the methodology for the data collection, the description of the data found, and the analysis. Section 5 concludes.

### 1. Canonical and non-canonical questions in LSC

The study of interrogatives in sign languages has mostly focused on content interrogatives (*wh*-questions) due to their particular syntax. When the interrogative word (*wh*-word) moves from its base position, it is displaced to the right periphery in most sign languages described so far. This is a striking generalization from the point of view of spoken languages since that *wh*-movement, if present, is to the left, as the contrast between the LSC and Catalan examples makes clear in (1). Note that in LSC, *wh*-questions are characterized by the combination of non-manual markers such as furrowed eyebrows (fe) and body lean forward (blf).

- fe+blf
- (1) a. GIRL BUY WHAT (LSC)  
       b. Què ha comprat la nena? (Catalan)  
           ‘What did the girl buy?’

However, other interrogative structures have been identified in sign languages, among which *wh*-in situ and *wh*-doubling can be highlighted, exemplified in (2a) and (2b) for ASL (Abner, 2011: 25) and Libras (Quadros, 2006: 274), respectively.

- (2) a. IX<sub>2</sub> BUY WHAT YESTERDAY (ASL)  
       ‘What did you buy yesterday?’  
       \_\_\_\_\_ *wh*  
       b. WHAT/WHO BOYFRIEND M-A-R-Y WHAT/WHO (Libras)  
       ‘Who is Mary’s boyfriend?’

Although not always discussed, it is often the case that interrogative strategies are not equivalent from an interpretive point of view. Therefore, it is important to distinguish between canonical *wh*-questions, which are used as default in purely information-seeking contexts, and non-canonical ones, which have a more restricted distribution due to contextual conditions of use. Trotzke and Czypionka (2022) and Trotzke (2023) adopt the term ‘non-canonical questions’ for interrogatives that do not simply elicit information from the addressee but rather encode something about the speaker’s epistemic and/or emotional state, as in echo questions and surprise questions.

In LSC, the rightward movement strategy illustrated in (1a) above corresponds to the canonical type of question. Quer and Zorzi (to appear) identify two non-canonical interrogatives in LSC: in situ and *wh*-doubling questions.<sup>1</sup> They are syntactically marked and constrained to being used in specific pragmatic contexts. LSC in situ interrogatives are found in echo contexts looking for clarification about a constituent in the preceding utterance that was not understood. The *wh*-word does not occur in the right periphery as in canonical questions but in

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<sup>1</sup> For further details, see Quer and Zorzi (to appear), especially for the behavior of non-manual markers in these questions.

the original position where the constituent appeared in the preceding utterance. See an example of an echo question in (3) with the corresponding context<sup>2</sup>.

- (3) Context: Joan and Maria went to a free buffet, and Joan is vegan. You asked Maria what Joan took, and Maria answered, "JOAN XXXX TAKE". But you didn't understand what Maria told you, so you asked her...

\_\_\_\_\_ (fe+blf)

JOAN WHAT TAKE

(LSC)

'Joan took what?' <sup>3</sup>

The same structure can be uttered as an expression of concern or negative surprise.

*Wh*-doubling structures in LSC are also used in contexts that trigger a concern reaction. The *wh*-signs can occur either on the left and right edge of the clause or else at the edges of the clause, possibly with a topicalized constituent preceding the clause, as illustrated in (4).

- (4) Context: Joan and Maria went to a free buffet, and Joan has a strong allergy to milk. All cookies have milk in them. Maria tells you that Joan took a cookie, and you ask Maria...

\_\_\_\_\_ (fe+blf)

a. WHAT JOAN EAT WHAT

(LSC)

'Joan took what?!' <sup>4</sup>

\_\_\_\_\_ (fe+blf)

b. JOAN WHAT TAKE WHAT

'Joan took what?!' <sup>5</sup>

<sup>2</sup> Examples in sign language are glossed following the usual glossing conventions, where each sign is written in small caps and the scope of non-manual markers is represented with a tier above the glosses of the manual signs. For details, see the SignGram notational conventions, available at <https://www.degruyter.com/document/doi/10.1515/9781501511806-002/html>.

<sup>3</sup> Link to the glossed video of example (3): <https://vimeo.com/973890384>

<sup>4</sup> Link to the glossed video of example (4a): <https://vimeo.com/973898010>

<sup>5</sup> Link to the glossed video of example (4b): <https://vimeo.com/973898062>

In this contribution, we present and analyze a third type of non-canonical question in LSC: cleft *wh*-questions. They are also contextually bound and display a very particular syntactic derivation that aligns with its information-structure partitioning. Before focusing on the LSC *wh*-clefts in LSC, we will briefly review their properties in spoken and sign languages.

## 2. Cleft *wh*-questions

*Wh*-questions that adopt the structure of a cleft are relatively common as a strategy to structure interrogatives in languages like Portuguese or Italian, for instance, where the pivot of the cleft is realized by the *wh*-element and the rest of the material appears in the *that*-clause coda. European Portuguese (EP) realizes both options (Ambar, 1992): the plain interrogative with leftward movement of the *wh*-element (5a), on the one hand, and the clefted version of the question (5b).

- (5) a. O que comprou a Maria? (EP)  
       what bought the Maria  
       b. O que é que a Maria comprou?  
           what is that the Maria bought  
           ‘What did Maria buy?’

Cleft *wh*-questions have been claimed to be associated with an existential presupposition in certain languages like French, as the infelicitous answer in (6B) makes clear (Shlonsky, 2012). This property would derive from the cleft structure, typically associated with a presuppositional interpretation.

- (6) A: C’est quoi que tu fais dans la vie? (French)  
       it's what that you do in the life  
       ‘What is it that you do in life?’  
       B: #Rien.  
       ‘Nothing’

However, presuppositionality does not seem to be a defining property of cleft *wh*-questions, as in Italian. Cardinaletti (2024) states that the clefted variant and the simple one in (7) are interchangeable, and (7a) does not carry an existential presupposition, so it can be answered with *nessuno* ‘no one’. By contrast, declarative clefts in Italian are presuppositional.

- (7) a. Chi è che ha telefonato? (Italian)  
       who is that has called  
       ‘Who is it that called?’  
       b. Chi ha telefonato?  
       who has called  
       ‘Who called?’

For some sign languages, cleft *wh*-questions have been identified too. Abner (2011: 6) shows that the *wh*-question in American Sign Language (ASL) with a *wh*-element on the right, like example (8), is an instance of a cleft (as opposed to *wh*-in situ, which is claimed to realize canonical or neutral questions in the language): the pivot is realized by the *wh*-phrase, and the coda appears as a topic before it.

- \_\_\_\_\_ t \_\_\_\_\_ wh  
 (8) MARY READ YESTERDAY, BOOK WHICH (ASL)  
       ‘Which book is it that Mary read yesterday?’

Abner determines the interpretive properties in this structure that are characteristically associated with cleft sentences: presupposition, exhaustivity, and contrastivity.

Branchini *et al.* (2013) argue that Italian Sign Language (LIS) interrogatives with identical *wh*-duplication are instances of a cleft *wh*-question, with the first instance moved to a leftward Spec,FocP and the second one moved to the rightward Spec,CP. They also ascribe a presuppositional interpretation to this type of question in LIS.

In this work, another type of clefted *wh*-question is described and analyzed for LSC. To the best of our knowledge, this structure has never been described in the language before. It constitutes yet another instance of a non-canonical question.

## 2.1. Structural ambiguities in interrogatives and clefts

It has been widely acknowledged in the literature that *wh*-interrogatives can have structural ambiguity in their interpretation as subject or object questions. This is, for example, the case of *who* and *which*-questions in Italian (Penolazzi *et al.*, 2005; Cecchetto *et al.*, 2022; Cardinaletti, 2024). (9) and (10) exemplify an ambiguous *who*-question (Cardinaletti, 2024: 29) and a *which*-question (Cecchetto *et al.*, 2022: 2) in Italian.

- (9) Chi ha salutato, Maria? (Italian)  
 who has greeted Maria  
 a. Chi<sub>obj</sub> ha salutato, Maria<sub>subj</sub>?  
   ‘Who did Maria greet?’  
 b. Chi<sub>subj</sub> ha salutato, Maria<sub>obj</sub>?  
   ‘Who greeted Maria?’
- (10) Quale cane morde il gatto? (Italian)  
 which dog bites the cat  
 a. ‘Which dog bites the cat?’  
 b. ‘Which dog does the cat bite?’

The same ambiguity is also found in sign languages, such as LIS (Cecchetto *et al.*, 2022: 2), differently from French Sign Language (Hauser *et al.*, 2023).

- (11) CAT BITE DOG WHICH (LIS)  
 a. ‘Which dog bites the cat?’  
 b. ‘Which dog does the cat bite?’



Different strategies can be employed in spoken and signed languages to disambiguate these interrogatives. In spoken languages, the pronoun *who* can be disambiguated by marking the interrogative pronoun with case, as in German, through the order of phrasal elements, as in English, or through the number agreement of sentence constituents, as in Italian (Penolazzi *et al.*, 2005). In LIS, a possible way to disambiguate interrogatives with the *wh*-sign WHICH involves using a classifier construction that can be used to mark the subject interpretation (Cecchetto *et al.*, 2022). In spoken Italian, though, another way to disambiguate an interrogative is through the use of a cleft *wh*-question. As reported in Cardinaletti (2024: 29), example (12) is judged as non-ambiguous: Maria can only be the subject (12a), and the object interpretation is ungrammatical (12b).

- (12) Chi è che ha salutato, Maria? (Italian)  
 who is that has greeted Maria  
 a. Chi<sub>obj</sub> è che ha salutato, Maria<sub>subj</sub>?  
     ‘Who is it that Maria greeted?’  
 b. \*Chi<sub>subj</sub> è che ha salutato, Maria<sub>obj</sub>?  
     Intended meaning: ‘Who is it that greeted Maria?’

LSC displays a structural ambiguity similar to that found in Italian and LIS. A productive strategy to disambiguate a subject or object reading in LSC is using a cleft *wh*-question.

### 3. A type of cleft *wh*-questions in LSC

Similarly to Italian and LIS, LSC is characterized by structural ambiguity in *wh*-questions. The ambiguity is triggered when there are three characters of the same type (animate, thus reversible) and two of them are performing the same action, as in Figure 1.

FIGURE 1 - Image with three characters, two of which are performing the same action



(Source: © LSC Lab)

A generic *which*-question in Italian asking about which girl is caressing the mother (subject *wh*-question) or which girl the mother caresses (object *wh*-question) is ambiguous, like in example (13). In LSC, the only way not to make this sentence ambiguous is through an explicit use of the signing space to mark agreement with the arguments, optionally supported by an auxiliary that further clarifies who is performing the action, like in (14a) and (14b), respectively a subject and an object *wh*-question. In subject *wh*-questions, the object tends to be topicalized to establish the locus in the signing space to realize the agreement with the verb, while in object questions, it is the subject that is kept on the left periphery of the sentence. Without the use of the agreement in space, the sentence would be entirely ambiguous.


(13) Quale ragazza accarezza la mamma? (Italian)  
which girl caresses the mom?

- a. The girl with blond hair (subject)
- b. The girl with dark hair (object).

(14) a. IX-3<sub>a</sub> MOM<sub>a</sub> GIRL<sub>b</sub> 3-CARESS-3<sub>a</sub> WHICH<sub>b</sub> (LSC)

'Which girl caressed the mom?' <sup>6</sup>

b. IX-3<sub>a</sub> MOM<sub>a</sub> CARESS-3<sub>b</sub> GIRL<sub>b</sub> WHICH<sub>b</sub>

'Which girl did the mom caress?' <sup>7</sup>

<sup>6</sup> Link to the glossed video of example (14a): <https://vimeo.com/1036331916>

<sup>7</sup> Link to the glossed video of example (14b): <https://vimeo.com/1036331934>

Based on this data on LSC, where *wh*-questions are realized in a context with three characters, the next goal was to understand what strategies must be used when only two characters are involved. Looking at the use of different *wh*-signs, the constructions used were ambiguous. The question in (15), representing Figure 2, can refer either to the subject or the object, even trying to mirror in the signing space the event described in the picture.


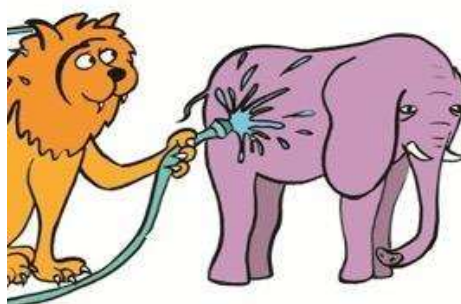
- (15) WATER SPRINKLE ANIMAL WHICH? (LSC)  
 'Which animal is sprinkling water on the other/is being sprinkled with water by the other?' <sup>8</sup>

FIGURE 2 - Image used to represent the event in example (15)



(Source: © LSC Lab)

To clarify the structural (and interpretive) ambiguity in questions like the one in (15), only a cleft *wh*-question turned out to be the productive structure that allows that.

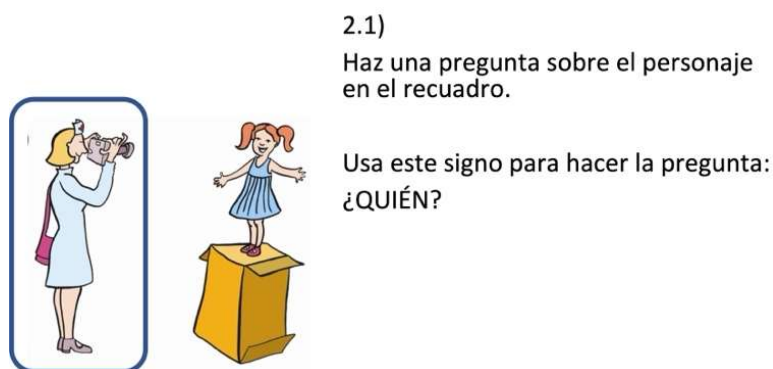
## 4. Methodology

The goal of this study was to understand how to structurally disambiguate *wh*-questions in a context with two characters of the same type, namely animate. The data elicitations happened in three phases with two deaf LSC experts:

<sup>8</sup> Link to the glossed video of example (15): <https://vimeo.com/1036331108>

- Phase 1: online data recording with a PowerPoint guideline where the signer was asked to make a question about the character selected with a rectangle in the target picture, and it was specified what sign to use to ask the question, like in Figure 3.

FIGURE 3 - Phase 1 of the data elicitation



(Source: © LSC Lab)

- Phase 2: online playback method asking for acceptability judgments and the readings available for each sentence. As shown in Figure 4, the signers were invited to watch the video and select the answer to the question. The signer could see the picture with the two characters before and after watching the video.

FIGURE 4 - Phase 2 of the data elicitation



(Source: © LSC Lab)

- Phase 3: in person playback method. Similarly to phase 2, the signers were asked to watch the video and select the answer to the question. The signer could see the picture with the two characters before and after watching the video.

The *wh*-questions elicited were subject and object *who*- and *which*-questions. The *wh*-signs targeted were two variations of the sign for “who”: WHO and WHO<sub>which</sub>, the first one meaning “who” and the second one “which” because it is produced with the mouthing /kwál/ (*cuál*, ‘which’ in Spanish), cf. Figure 5.

FIGURE 5 - The manual realization of the signs WHO and WHO<sub>which</sub>.



(Source: © LSC Lab)

In LSC, three variants of the sign also mean “which”. The main difference is the handshape used, and that WHICH (AA) and WHICH (2) can be used with only two referents, differently from WHICH (55). The three signs are represented in Figure 6. The sign restrictor PERSON or ANIMAL accompanied these signs.

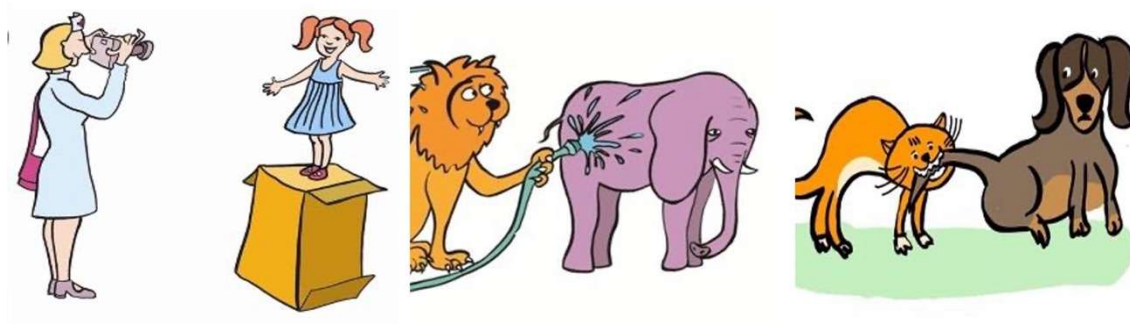
FIGURE 6 - The signs WHICH (AA), WHICH (55), and WHICH (2)



(Source: © LSC Lab)

As for the verbs selected, we selected both plain and agreement verbs. An example of a plain verb was TAKE-PICTURE, and two of the agreement verbs were SPRINKLE and BITE, represented in Figure 7.

FIGURE 7 - Picture representing the verbs TAKE-PICTURE, SPRINKLE, and BITE





(Source: © LSC Lab)

Finally, we aimed at verifying if the use of agreement in space, even through the use of an auxiliary, could be a productive strategy to disambiguate between subject and object *wh*-questions. Importantly, the two characters were always salient in the context since the signers always saw the pictures associated with the questions or were explicit in the context in which they were asked.

## 5. Description and analysis

The disambiguation of subject and object *wh*-questions with two characters of the same type (animate) requires agreement in the signing space. Still, crucially, it is also necessary to use a pronoun that is anaphoric to the referent asked about. This results in a bi-clausal structure in which the referents are first introduced in a topicalized clause, establishing the loci linked to them. The main clause targets the subject or the object of the topic clause by using a pronoun followed by the *wh*-phrase. (16a) is an example with the verb BITE expressing a subject *wh*-question. The main clause third person pronoun (IX3<sub>a</sub>) refers back to the locus in space linked to the subject. In (16b), instead, the pronoun refers to the object (IX3<sub>b</sub>). The use of the auxiliary in the first part of the sentence and the nominal restrictor ANIMAL in the

second one are both optional<sup>9</sup>. We refer to this type of construction as a bi-clausal cleft *wh*-question, which can be realized with *who*- or *which*-signs (only the latter appear with a nominal restrictor).

- \_\_\_\_\_ re re+squint \_\_\_\_\_ fe+bl
- (16) a. ANIMAL 3<sub>a</sub>-BITE-3<sub>b</sub> (3<sub>a</sub>-AUX-3<sub>b</sub>), IX3<sub>a</sub> (ANIMAL) WHICH(55). (LSC)  
 'An animal is biting another one: which one is it (the one that is biting)?' <sup>10</sup>
- \_\_\_\_\_ re re+squint \_\_\_\_\_ fe+bl
- b. ANIMAL 3<sub>a</sub>-BITE-3<sub>b</sub> (3<sub>a</sub>-AUX-3<sub>b</sub>), IX3<sub>b</sub> (ANIMAL) WHICH(55).  
 'An animal is biting another one: which one is it (the one that is bitten)?' <sup>11</sup>

Focusing on the bi-clausal nature of this cleft *wh*-question construction, it is essential to underline the use of non-manual markers (NMMs). The first sentence is realized entirely with raised eyebrows, while the pronoun linked to the subject or object referent in the second clause is marked with raised eyebrows and squinted eyes, the latter being a common marker of known information. This is due to the fact that the interpretation of the questioned element is D(iscourse)-linked, and therefore it conveys existential presupposition. The *wh*-restrictor (if present) and the *wh*-sign following the pronoun are produced with the common NMMs for *wh*-questions in LSC, furrowed eyebrows, and body lean forward.

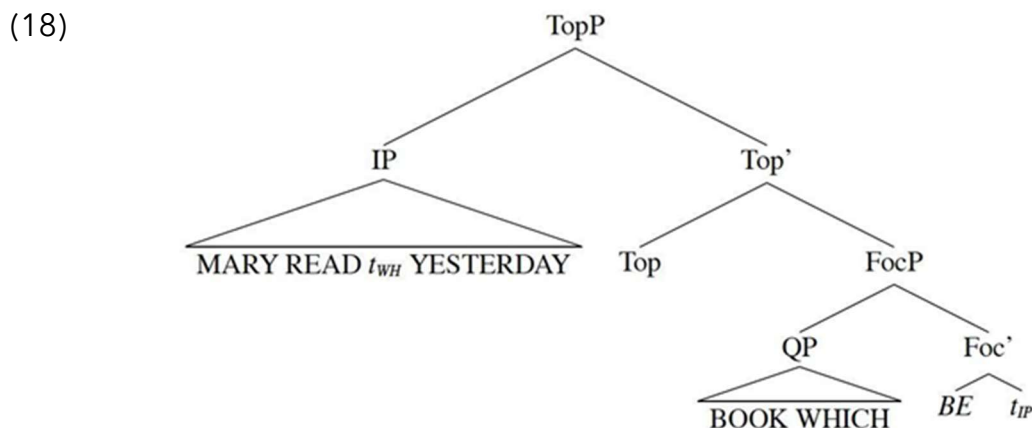
The cleft *wh*-questions in (16) in LSC are partially similar to the ASL clefts in (17) (repeated from (8) in Section 3). For ASL, Abner (2011) proposes a mono-clausal structure where the BE copula of the cleft is empty, the *wh*-phrase moves to Spec,FocP first, and the remnant IP moves to Spec,TopP, as shown in (18).

<sup>9</sup> In this paper we will present only data with agreement verbs because plain verbs require the use of agreement with the 1<sup>st</sup> person and more data are necessary to establish the nature of this type of structure, whether it involves an instance of role-shift or a default use of the 1<sup>st</sup> person agreement, in line with Khristoforova (2023).

<sup>10</sup> Link to the glossed video of example (16a): <https://vimeo.com/1036331084>

<sup>11</sup> Link to the glossed video of example (16b): <https://vimeo.com/1036331959>

- \_\_\_\_\_ t \_\_\_\_\_ wh
- (17) MARY READ YESTERDAY, BOOK WHICH (ASL)  
 'Which book is it that Mary read yesterday?'

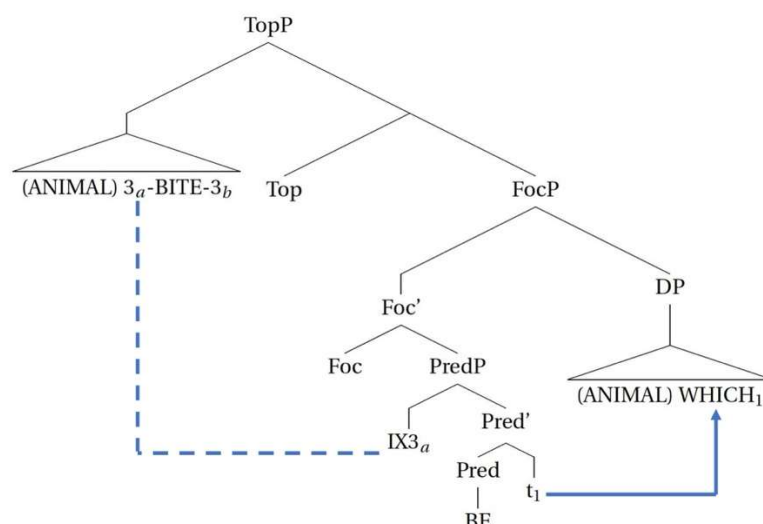


For LSC, instead, we propose a biclausal cleft-like analysis where the *wh*-sign is on the right edge of the sentence. The bi-clausal structure comprises a topic clause followed by a *wh*-copular clause. As represented in (20) for the subject cleft *wh*-question in (19), repeated from (16a), the *wh*-movement happens within the copular clause. Moreover, there is a referential dependency between one of the arguments in the topic clause and the pronominal index in the *wh*-copular clause. The predicate phrase (PredP) in the structure has the function of a small clause, as shown in (20).

- \_\_\_\_\_ re re+squint \_\_\_\_\_ fe+bl
- (19) ANIMAL 3<sub>a</sub>-BITE-3<sub>b</sub> (3<sub>a</sub>-AUX-3<sub>b</sub>), IX3<sub>a</sub> (ANIMAL) WHICH(55). (LSC)  
 'An animal is biting another one: which one is it (the one that is biting)?'



(20)



Given the D-linked nature of this type of *wh*-question and the unique context in which they can be used, we can list cleft *wh*-questions among the non-canonical *wh*-questions in LSC.

## Conclusion

In opposition to canonical *wh*-questions, which are used as default in purely information seeking contexts, non-canonical ones have a more restricted distribution due to contextual conditions of use. Cleft *wh*-questions are attested and analyzed here for LSC for the first time as a type of non-canonical question, together with others previously described by Quer and Zorzi (to appear). Cleft *wh*-questions in LSC are claimed to be used to disambiguate subject and object *wh*-questions in a context where two characters are of the same type. They are characterized by a bi-causal structure in which the first part of the sentence is a topic clause, and the second part features a pronoun referring back to the subject or the object, followed by a *which*- or *who*-phrase. Unlike the structure proposed for ASL by Abner (2011), we show that in LSC, the cleft is a bi-clausal structure formed by a topic clause and a *wh*-copular clause containing the pivot, and *wh*-movement happens within the copular clause.

This work contributes to the existing literature on cleft *wh*-questions and helps to further understand their use and the context in which they can occur.

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