The notion of focus and its relation to contrast in Catalan Sign Language (LSC)

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ABSTRACT

In this paper, we describe the different syntactic and prosodic manual and non-manual markers used in the expression of focus and contrast in LSC. Given that in LSC contrast markers may also be found in topics, we follow Valldúví & Vilkuna (1998) and analyse the notion of contrast as a different dimension, which may also overlap with topics, and we offer an analysis of the expression of contrast in LSC from a unifying semantic-pragmatic perspective. Moreover, following Umbach (2004), we identify three different subtypes of contrast expressed through different combinations of markers.

Keywords: Focus, Contrast, Contrastive Topic, Contrastive Focus, Catalan Sign Language, LSC.

1. Introduction

The notions of focus and contrast have been widely discussed in the Information Structure (IS) field. However, there is little agreement among researchers about how these notions should be defined. Research in this field in sign languages is relatively young, and many of the studies on IS are descriptive studies carried out from syntactic perspectives that treat contrast as a feature of topics and foci, and not as a separate category.

For Catalan Sign Language (*llengua de signes catalana,* LSC) there are few studies addressing IS notions. Therefore, this paper has two main goals: i) describing focus and contrast markers in LSC, and ii) providing a classification for contrast types based on the prosodic and morphophonological markers found in the data from LSC, and their correlation with different semantic interpretations.

In this paper, we use the term *focus* to refer to the part of the sentence that provides new information to the discourse, and the term *contrast* to refer to the dependency relation between two or more salient contextually contrasted alternatives in discourse. Following Valldúví & Vilkuna (1998), we analyse the notions of focus and contrast as independent, though related, IS notions that overlap with each other. Our claim is that information focus and contrastive focus are not different focus types;

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instead, we argue that contrast is a separate category that may overlap with the focus or the topic of a sentence, giving rise to what has been traditionally called *contrastive focus* and *contrastive topic*. Moreover, based on Umbach (2004) and inspired by Kimmelman (2014), we propose a classification for LSC contrast types: *parallel contrast*, *selective contrast*, and *corrective contrast*. All these types are expressed through the same basic markers, namely body leans and head tilts from left to right, and the use of opposite sides of space, plus additional markers: head nods, which are found in selection contexts triggering an exhaustive meaning, and head thrusts, which are found in correction contexts triggering an exhaustive and contrary-to-expectations meaning.

This paper is structured as follows. Section 2 offers an overview on the notion of focus in spoken languages and sign languages. Section 3 reviews the existing approaches to the notion of contrast and the previous research on this topic for LSC. Section 4 explains the methodology. Section 5 presents data on focus markers in LSC. Section 6 presents data on the expression of contrast in LSC and analyses the correlation between contrast markers and different semantic interpretations. Lastly, section 7 summarizes the main contributions of this paper.

2. The notion of focus

2.1. Focus types and focus marking in spoken languages

Focus is often defined as being the part of the sentence that offers new information in relation to the context of the discourse. Traditionally, from a syntactic perspective, the notion of focus has been divided into two different subtypes: information focus (IF) and contrastive focus (CF). Kiss (1998) argues in favour of this distinction, and, based on data from Hungarian and English, claims that IF and CF have different syntactic and semantic properties. According to her work, CF in Hungarian is always placed in preverbal position and it is interpreted as exhaustive (1), contrary to IF (2).

(1)   Mari EGY KALAPOT nézett ki magának.
        Mary a   hat.acc   picked out herself
        'It was a hat that Mary picked for herself.'   (Kiss, 1998: 249)

(2)   Mari ki   nezett magának EGY KALAPOT.
        Mari out picked herself   a   hat. acc
        'Mary picked for herself a hat.'   (Kiss, 1998: 249)

Other works (Vallduví & Vilkuna 1998, among others), assume a semantic-pragmatic perspective, in which focus and contrast are actually separate notions that may overlap with each other. We will address this question in more detail in Section 3.

The focus of a sentence is generally marked by intonation. However, syntactic and morphological strategies have been attested as well. Vallduví & Engdahl (1996) argue that some languages, like Catalan, use syntactic strategies in order to place the focused element in the position of syntactic prominence in the sentence. In (3) below different syntactic structures are used depending on whether the focus is on the object (3a) or on the verb (3b). In contrast, other languages, like English, are more likely to use prosodic strategies, like shifting the position of the nuclear stress, as shown in (4).

(3)   a. L'amo odia   el [BRÒQUIL]F.
            the.boss 3sg-hate   the broccoli
          'The boss hates broccoli.'
         b. L'amo   l'   =[ODIA]F, el bròquil.
            the.boss   obj_cl=hates   the broccoli
          'The boss hates broccoli.'
                      (adapted from Vallduví 1990: 296)

(4)   a. The boss hates [BROCCOLI]F.
         b. The boss [HATES]F broccoli.
                      (adapted from Vallduví 1990: 296)

Moreover, some spoken languages express focus through morphological strategies. For instance, Navajo uses the morpheme 'ga' to mark focus in a sentence, as illustrated in (5).

(5)   Jàan chidïïsh yiyíílcho.
          John car.Q   3sg-past-wreck
          'Did John wreck the car?'
          NDA, (Jáan) [Fchidítsoh ga']F (yiyíílcho).
          no   John truck   F 3SG-PAST-wreck
          'No, John wrecked the truck.'
                          (Vallduví & Engdahl 1996: 493)

2.2. Focus types and focus markers in Sign Languages

Literature on IS in SLs is not very extensive; still, there are some studies on focus in American Sign Language (ASL) (Wilbur 1997, 1999, 2012, Neidle 2002), Brazilian Sign Language (LSB) (Nunes & Quadros 2008), German Sign Language (DGS) (Herrmann 2013, 2015), Hong Kong Sign Language (HKSL) (Sze 2008, 2011, 2015), Russian Sign Language (RSL) (Kimmelman 2014) and Sign Language of the Netherlands (NGT) (Van der Kooij et al. 2006, Crasborn & Van der Kooij 2013, Kimmelman 2014). These studies

are done from a syntactic perspective assuming that contrast is a feature of topics and foci. In these works, three types of focus are commonly distinguished: information focus (IF), contrastive focus (CF), and emphatic focus (EF) (Wilbur 2012, Kimmelman & Pfau 2016). Moreover, Kimmelman (2014) distinguishes two subtypes of contrastive focus: selective focus and corrective focus.

Focus in SLs may be marked either syntactically or prosodically, but no morphological strategies have been attested (Kimmelman & Pfau 2016). Following the general assumption that a focused constituent needs to be stressed, Kimmelman & Pfau (2016) point out that a stressed sign must be longer in duration, have a larger movement trajectory, and a higher velocity of the movement. These features seem to be common across the SLs studied until date.

Wilbur (1997) claims that, in ASL, focus is marked by placing the focused item in final position, which is a position of syntactic prominence. She distinguishes three types of constructions with focus in final position: i) question-answer pairs[2], which consist in a wh-question followed by an answer, and may mark CF as illustrated in (6)[3], ii) doubling a focused element, so it appears in its usual position and also in final position, which triggers EF, as exemplified in (7), and iii) a base-generated construction in which the focused item appears in final position in order to express IF, as shown in (8).

(6)   <u>   rhq   hn   </u>
    LEE PAINT WHAT? [CHAIR]$_F$
    'What Lee painted was the chair.'   (Wilbur, 1996: 210)

(7)   MUST GO-WORK MUST
    'I must go to work.'   (Wilbur, 2012: 482)

(8)   <u>   rb   </u>
    MY SISTER, [DOCTOR]$_F$

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2 The nature of these constructions is a controversial topic in nowadays SL research. In this paper we adopt the term question-answer pair to refer to them, but do not provide an analysis of their nature.

3 The usual glossing conventions in the sign language literature are followed, according to which manual signs are represented by the capitalized word corresponding to the gloss of the sign (the most general translation into a spoken language word). The scope of nonmanual markings is represented with a line that spreads over the manual material with which it is coarticulated. The relevant abbreviations for the purposes of this paper are the following ones: ix (pointing sign); ix# (pronominal index; the number corresponds to 1st, 2nd or 3rd person); rhq (rhetorical question); re (raised eyebrows); bl (body lean); ht (head tilt); hn (head nod); hthr (head thrust); sp (space).

'My sister is a doctor.'   (Wilbur, 1997: 93)

Regarding CF, Kimmelman points out that it is usually marked by topicalization, moving the focused constituent to the left of the sentence. Other markers found for NGT and RSL for the expression of CF are the use of the opposite sides of the signing space for placing contrasted referents, and/or body leans towards these locations, as illustrated in example (9) from RSL.

(9)   _____right_bl_____   _____left_bl_____
               [CAT]$_T$ [BITE BOY]$_F$ IX [DOG]$_T$ [BITE GIRL]$_F$
               'The cat bites a boy. The dog bites a girl.'
                                   (adapted from Kimmelman, 2014: 210)

It is important to notice that the marking for contrast described above is spreading over both topics and foci in example (9). This is a common pattern in some of the SLs studied until now. However, the notion of contrast in SLs is often described as a feature of topics and foci, and not as a separate notion of IS that overlaps with them.

3. The notion of contrast
3.1. Approaches to the study of contrast

Contrast is a controversial notion that has been broadly addressed in the IS literature. There are different perspectives, which involve different explanations for this phenomenon: syntactic approaches and semantic approaches. In the syntactic approaches, contrast results from exhaustiveness (Kiss 1998, among others). This approach makes a distinction between two types of focus: information focus and contrastive focus, treating contrast as a feature of focus.

In the semantic approaches, focus is seen as a unified phenomenon that results from the existence of alternatives (Rooth 1992, Krifka 2008). Most of the studies done from a semantic perspective merge the concepts of focus and contrast into a single one: focus. Vallduví & Vilkuna (1998), however, argue that focus and contrast (*rheme* and *kontrast* in their terms) are indeed different categories that must be distinguished. They claim that both notions are orthogonal and thus not mutually exclusive: the rheme contains the new information, and belongs to the information structure domain, and kontrast triggers a set of alternatives, and belongs to the quantificational structure domain. In addition, kontrast may also overlap with the topic of a sentence giving rise to CTs.

Unlike what has been traditionally understood in the study of contrast, Umbach (2004) claims that syntactic and semantic approaches are compatible. She argues that contrast is not a unique notion, and different types can be distinguished based on the semantic-pragmatic interpretations they trigger. For instance, (10) below shows *contrast due to similarity plus dissimilarity* between 'beer' and 'port'. Both contrasted

referents have a common integrator (similarity), as they are drinks, and have semantic independence (dissimilarity), as they have different meanings.

(10) John bought the BEER and/but Mary bought the PORT.

<div align="right">(Umbach 2004: 6)</div>

Another type of contrast that Umbach proposes is *contrast due to exclusion*. This type of contrast triggers exhaustivity, as shown in examples (11) and (12) below. Moreover, Umbach distinguishes between two varieties of exclusion. In the first variety (11) the CF ('Ronald') excludes the possibility that some other item instead of the focused one is true. In the second variety (12), the only-phrase ('only Ronald') excludes the possibility that some other item in addition to the focused one is true.

(11)　　　(A: Mary made the salad and Anna the hamburgers)
　　　　　B: RONALD made the hamburgers.　　(adapted from Umbach 2004: 7)

(12)　　　(A: Tonight, Ronald and Rosa went shopping)
　　　　　B: Tonight, only RONALD went shopping.

<div align="right">(adapted from Umbach 2004: 8)</div>

Destruel & Velleman (2014) go a step further in the analysis of contrast and refine its definition based on an analysis of English it-clefts. They propose that contrast is a gradient notion that "should be understood in terms of conflict with expectations", since clefts are more felicitous the more they conflict with the interlocutors' expectations.

3.2. Contrast markers in Catalan Sign Language

Regarding sign languages (SLs), most of the studies on Information Structure (IS) have adopted a syntactic perspective assuming that there is not a category for contrast (cf. Kimmelman 2014, Kimmelman & Pfau 2016, among others). These works assume a traditional categorization for focus types including contrast as a feature of contrastive focus. However, they acknowledge that this question needs further research, since the strategies used in many SLs for the expression of contrast may be evidence for considering contrast as a separate category in IS.

The traditional syntactic categorization for focus types does not account for the fact that in Catalan Sign Language (LSC) focus and topics display the same marking in order to express contrast. Barberà (2012) claims that, in LSC, a contrastive relation is overtly expressed when both sides of the signing space are used in discourse to localize two entities. In this work, this marking is considered an overt marking of the expression of CTs.

In the same line, Zorzi (2018) describes the use of the same markers for expressing contrast in coordination and gapping in LSC. In example (13) below, the marking for contrast —left and right head tilts and the use of the opposite sides of the signing space — spreads over both topics and foci. Note that marina and coffee are body-anchored signs, so they cannot be placed in any side of the space due to articulatory restrictions. Instead, a leftward head tilt is spread over both signs.

(13)   <u>left sp</u>   <u>right sp</u>
                               <u>left ht</u>   <u>right ht</u>
[[MARINA]$_T$ [COFFEE]$_F$ PAY, [[JORDI]$_T$ [CROISSANT]$_F$
'Marina paid for a coffee and Jordi for a croissant.'
                                               (adapted from Zorzi, 2018)

The fact that in LSC the same marking of contrast is spread over topics and foci highlights the need to approach the notion of contrast from a more general perspective incorporating related facts that have been analysed separately until now. In section 7 we analyse contrast in LSC from a semantic-pragmatic perspective and we propose a new classification for contrast types based on (but not equal to) Umbach's analysis.

4. Methodology
The data for this research have been obtained from two deaf native signers, a woman and a man, of middle age, born and raised in Catalonia. Different elicitation tasks where combined to compensate the possible limitations of each task, as presented in what follows.

Q-tests task
Some sentences were elicited with the support of visual stimuli from the *Questionnaire for Information Structure (*QUIS) (Skopeteas et al. 2006). In this task, the signers were shown a picture, which contained either one or two referents, and then they were asked different questions in relation to those pictures. Three different types of questions were asked: i) plain questions that triggered focus without contrast, ii) questions that forced the signer to select a referent out of the two that were shown in the picture, which triggered selective contrast, and iii) questions that contained false information, in order to elicit correction. Moreover, questions triggered different scopes of focus: narrow focus –subject, object or verb focus–, and broad focus –VP focus or all-focus sentences–. When there were two contrasted referents in the picture, they were located next to each other. In order to be sure that the location of the referents in the pictures was not influencing the results obtained in the use of the signing space we conducted other tasks and compared the results.

Dialogue task

Two dialogues based on a storyboard telling task were conducted in order to elicit full sentences with more than two contrasted referents in a more naturalistic context. We used Totemfield Storyboards (Littell 2010), which provides storyboards created specifically to elicit focus.

Translation task

In this task, we created contexts taking into account the particular characteristics of the culture of the Deaf community in Catalonia. The contexts were presented to the participants in LSC, and, after the explanation, the participants were asked to translate a written sentence from Spanish into LSC.

Felicity judgment task

Once all the tasks had been conducted, the signers were asked to rate if their own productions were felicitous in different contexts. The main objective of this final step was to i) verify the data obtained in the previous tasks and detect inconsistencies, and ii) find other examples that may not appear spontaneously in the other tasks.

The stimuli presented in the tasks were always contextualized, since focus and contrast completely depend on the preceding or following context. Moreover, the LSC corpus (under development in the *Institut d'Estudis Catalans,* Barberà et al. 2015) was consulted in order to compare and confirm our results with naturalistic data[4].

5. Focus in Catalan Sign Language (LSC)

Focus in LSC is an understudied phenomenon. In this section, we provide a basic description of the syntactic and prosodic manual and non-manual markers that are used in order to express focus in LSC.

5.1. Syntactic markers

Word order variation

LSC basic word order is SOV (Quer et al. 2005). However, this word order can vary for IS purposes. For instance, LSC sometimes places the focused element in final position where the pitch accent is more prominent. This movement is attested mainly in narrow focus instances[5], as illustrated in examples (14) and (15) below.

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4 The examples marked with the abbreviation (CORP) come from the LSC corpus. The rest of the examples were elicited in the context of the present study.

5 Deviations from the basic word order can also be attested in broad focus and all focus sentences due to a variety of reasons. Further research is needed, though, to provide a clear picture of these structures.

(14) BREAD [EAT]$_F$
     '(I) eat bread.'
(15) EAT [BREAD]$_F$
     '(I) eat bread.'

Question-answer pairs

Information focus can also be expressed by question-answer pairs. In example (16) below the part of the sentence marked with raised eyebrows corresponds to a question that is followed by an answer. Both the question and the answer are uttered by the same signer.

(16) <u>   rb</u>
     TITLE WHAT, FROG WHERE ARE YOU.   (CORP)
     'The title is "Frog, where are you?"'

For other SLs, this structure has been claimed to be parallel to *wh*-clefts in English (Wilbur 1996). However, the few examples that we have found for LSC seem not to be compatible with this analysis. In both the LSC corpus and the elicited data, these constructions appear in restricted contexts where a cleft would not be felicitous: they are mainly used to give new information about time, places or the title of a narration, a movie, etc. Nevertheless, more research is needed to fully understand the nature of these constructions in LSC.

Doubling

Another syntactic strategy used to express focus in LSC is doubling. Doubling is a strategy already attested for many other SLs (ASL, LIBRAS, RSL, NGT, etc.), which is used to emphasize information that is considered important (Petronio 1993). This strategy consists in repeating a focused element in a single sentence, as illustrated in the examples below.

(17) FROG **ESCAPE** WANT **ESCAPE**.   (CORP)
     'The frog wants to escape.'
(18) OBSESSION **WHERE** FROG **WHERE.**   (CORP)
     '(He) was obsessed about where the frog was.'

In example (17) above, the sign ESCAPE is doubled: it is found in its original position, and also at the end of the sentence. The same phenomenon is found in example (18); in this sentence, however, the original position of the *wh*-sign WHERE is final position, so it appears doubled before the subject. For some authors (Wilbur 2012, Kimmelman & Pfau 2014) doubled elements represent a specific focus type (emphatic focus);

however, we leave out of the scope of this paper a deeper analysis of these constructions.

5.2. Prosodic markers

In addition to the syntactic markers, focus in SLs is marked by manual and non-manual prosodic features. Manual markers are one of the means by which a signer stresses a focused sign. According to Kimmelman & Pfau (2016), a stressed sign is usually longer in duration, has a larger movement trajectory, and a higher velocity of the movement. These manual markers seem to be common in all SLs studied to date (see Wilbur 1999; Van der Kooij et al. 2006; Van der Kooij & Crasborn 2013 for an overview). Non-manual markers (NMMs) are claimed to be parallel to intonation in spoken languages (Sandler 1999, 2012). These markers refer to facial expressions, and head and body movements, which can also be used to stress a sign.

Manual marking

The manual articulation of signs in LSC shows some variation depending on whether the sign that is being produced is focused or not. There are two main characteristics that vary in LSC in the articulation of focused signs: (i) duration of the sign, and (ii) repetition of the sign. LSC data show that focused signs tend to be longer in duration than their unfocused counterparts, as shown in Table 1, where the sign apple has a longer duration (575 ms) when focused, compared to its unfocused counterpart (461 ms).

	Items	Duration of the sign
Non-focused	Who is eating an apple? [WOMAN]$_F$ PERSON [**APPLE**]$_{NF}$ EAT-APPLE 'The woman is eating an apple.'	461 ms
Focused	What are they eating, an apple or an icecream? [**APPLE**]$_F$ EAT 'Eating an apple.'	575 ms

Table 1. Comparison in duration of a focused sign vs. an unfocused sign

Moreover, movement of focused signs tends to be faster and involve more repetitions as compared to unfocused signs. In (19) below the sign horse is articulated repeating the movement 5 times, instead of two times, and in a faster way than its unfocused counterpart.

(19) HORSE

Video 1

Non-manual marking

There are different NMMs that are relevant in the expression of focus in Catalan Sign Language: raised eyebrows, mouthing, body leans, and head movements.
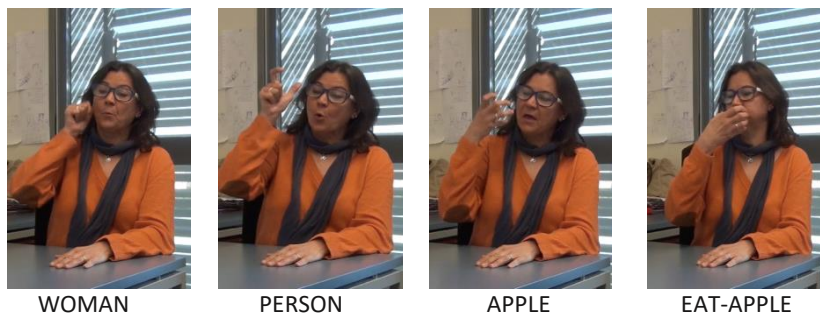
Raised eyebrows are used to mark focus when it is expressed in situ, that is to say, when there is no change in the basic word order. In (20) below, the signer is raising her eyebrows when uttering the focus of the sentence (WOMAN PERSON 'the woman') (Figures 1 & 2).
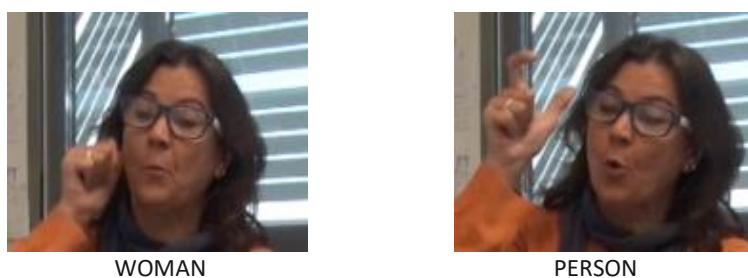
(20) Who is eating an apple?

<div style="margin-left:2em">

              rb
<u>   </u>

[WOMAN PERSON]$_F$ APPLE EAT-APPLE

'The woman is eating an apple'

</div>

| WOMAN | PERSON | APPLE | EAT-APPLE |

Figure 1. Subject-focus sentence

| WOMAN | PERSON |

Figure 2. Raised eyebrows in in situ subject-focus

A counterargument to this claim could be that the signs WOMAN and PERSON are a topicalized subject and, as a consequence, they are marked with raised eyebrows; however, if we look at example (21), we can see that it has two object-focus: the sign WINE, which is expressed in-situ, and the sign COKE, which is moved to final position. The former is not placed in clause-initial position, and it is marked with raised eyebrows while the latter is moved to final position and it is not marked with raised eyebrows (Figure 3). Our claim is that when the focus is found in final position it is placed in a position of syntactic prominence, and it does not need to be marked prosodically (with raised eyebrows). Instead, when the focus of the sentence is in-situ, no matter where it is placed in the sentence, raised eyebrows are always displayed marking the focus constituent.

Among all the NMMs found in the expression of focus, mouthing is the most salient and systematic one. This NMM is found in all instances of focus in the data analysed until now. Nevertheless, some examples of unfocused signs display mouthing as well, so it makes it difficult to determine if this NMM is actually a focus marker itself (similar results were reported for NGT by Crasborn & van der Kooij 2013).

Moreover, leftward and rightward body leans and head tilts are found in focused signs when they are contrastive. In (21) below a leftward body lean and head tilt is spread over WOMAN WINE DRINK ('The woman drinks wine'). By contrast, a rightward body lean and head tilt spreads over the clause MAN DRINK COKE ('the man drinks a coke') (figure 3).

(21)   left bl+ht   right bl+ht

                                      rb   rb

[WOMAN]$_T$ [WINE]$_F$ DRINK, [MAN]$_T$ DRINK [COKE]$_F$

'The woman drinks wine and the man drinks coke.'

| [WOMAN]$_T$ | [WINE]$_F$ | DRINK |
| [MAN]$_T$ | DRINK | [COKE]$_F$ |
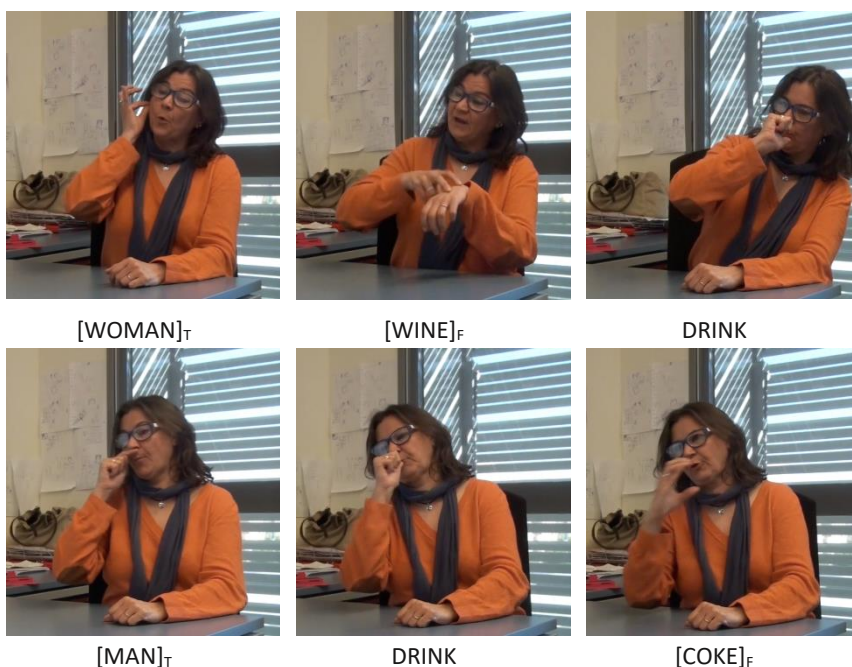
Figure 3. Focus, topic, and contrast.

In (21) above there is also one morphophonological strategy commonly used in LSC to mark contrast: the location of the contrasted referents in the opposite sides of the signing space. The focused sign WINE is articulated on the left side of the signing space, while the focused sign COKE is articulated on the right side.

Until now we have only described what happens when a focus is contrastive. However, it is important to notice that in (21) contrast markers not only spread over focused signs, but they also spread over the topicalized signs (WOMAN and MAN). As mentioned in section 2, topics in LSC, when contrastive, are also expressed through

the combination of markers explained before: the use of the opposite sides of the space plus left and right body leans and head tilts (Barberà 2012; Zorzi 2018)[6].

In the following section, we provide more data related to the notion of contrast in LSC and we argue that these markers are not actually marking two different IS notions: contrastive focus or contrastive topic, but they are rather marking a different IS notion: contrast.

6. Contrast in Catalan Sign Language (LSC)

As shown in section 3, contrast in LSC is primarily expressed through a combination of prosodic NMMs (left and right body leans and head tilts), and morphophonological marking (the use of the opposite sides of the signing space). These markers are always present when there are salient contextually contrasted alternatives and may spread across topics and foci as shown in (13), repeated as (22) below.

(22)   <u>left sp</u>   <u>right sp</u>
          <u>left ht</u>   <u>right ht</u>
[[MARINA]$_T$ [COFFEE]$_F$ PAY, [[JORDI]$_T$ [CROISSANT]$_F$
'Marina paid for a coffee and Jordi for a croissant.'
                                        (adapted from Zorzi, 2018)

This combination of markers may spread over different types of constituents. Example (23) shows an instance of single contrast. In this example, the focused signs INTERPRETER and LINGUIST are contrasted and marked with left and right body leans, and also with the use of the opposite sides of the signing space.

(23)   <u>left sp</u>   <u>right sp</u>
          <u>left bl</u>   <u>right bl</u>
RAQUEL PERSON [INTERPRETER]$_F$ ALSO [LINGUIST]$_F$.
'Raquel is an interpreter and a linguist.'

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6 Note that in (21) the topicalized signs WOMAN and MAN are not localized in the signing space despite being contrastive because they are body-anchored. However, the body leans and head tilts that accompany the articulation of these signs are pointing towards the same areas of the signing space where the focused signs are located.

Video 2

By contrast, (24) shows an instance of double contrast. In this example, the topicalized sign GIORGIA is contrasting with the topicalized sign RAQUEL, and the focused sign LINGUIST is contrasting with the focused sign INTERPRETER. The same markers for the expression of contrast (body leans, head tilts and the use of space) are found again in this example, this time spreading over both topics and foci.

(24)   left sp   right sp
                      left bl   right bl
[GIORGIA]$_T$ [LINGUIST]$_F$ [RAQUEL]$_T$ [INTERPRETER]$_F$.
'Giorgia is a linguist and/but Raquel is an interpreter.'

Video 3

Moreover, a lexical marker, the sign LIST, may be used for expressing contrast. This sign is commonly used when more than two alternatives are explicitly contrasted. It is optional, though, and can either substitute contrast markers, as illustrated in (25), or combine with them, as shown in (26).

(25) 'What did you buy at the supermarket?'
　　　LIST-1 POTATOES, LIST-2 EGGPLANT, LIST-3 TOMATOES, LIST-4 FISH, LIST-5
　　　MEAT, ETC.
　　　'Potatoes, eggplant, tomatoes, fish, meat, and other things.'

(26) ＿＿＿＿ left bl ＿＿＿＿ right bl ＿＿＿＿＿＿ left bl
　　　LIST-1 CANDY, LIST-2 MONEY, LIST-3 TEDDY BEAR.
　　　'Candy, money, a teddy bear.'

When the context requires selecting one alternative and excluding the other, the same marking is found again: the alternatives are located on the opposite sides of the signing space, and body leans and head tilts towards these locations are found. However, in this type of context, a repeated head nod is added, which is addressed towards the selected alternative (27, 28).

(27) What is the woman doing riding a bike or riding a horse?
　　　＿＿ right sp
　　　＿＿＿＿ hn
　　　right bl+ht
　　　BIKE RIDE
　　　'Riding a bike.'

Video 4

(28) What is the man doing riding a bike or riding a horse?

```
        left sp
             hn
   left bl+ht
HORSE RIDE
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'Riding a horse.'

Lastly, the data shows again body leans, head tilts, and the use of the opposite sides of the signing space in the context of a correction, as shown in (29). Nonetheless, in combination with this marking, a strong head thrust is commonly found emphasizing the alternative that is being corrected.

(29) The sea is yellow.

```
              right sp
      hthr   hthr
          right  bl+ht
NO, SEA SPECIFIC BLUE.
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'No, the sea is blue.'

[Video 5](#)

Our data also show that when the correction is expressed through a body-anchored sign, a pointing sign is added after the corrected alternative, which locates the referent in one of the sides of the signing space. In these cases, the NMMs spread over both the sign expressing the correction and the pointing sign associated to it. In (30) the head thrust spreads over the sign woman and also over the 3rd person pronoun ix$_3$.

(30) You ate an apple, right?

|————————————— hthr|
|————————————— ht|

NO, IX₁ NOTHING, [WOMAN]_F IX₃

'No, I didn't, the woman did.'

Types of contrast in LSC

Based on the data presented, and following Umbach (2004), we propose that in LSC, at least, three different types of contrast are distinguished: i) parallel contrast, ii) selective contrast, and iii) corrective contrast.

i) *Parallel contrast* introduces symmetric alternatives and is found in coordinated sentences or enumerations. This type of contrast is expressed through left and right body leans and head tilts, and the use of signing space, and it may overlap with both foci and topics, as illustrated in (23) repeated below as (31).

(31)

|———————— left sp —————————— right sp|
|———————— left bl —————————— right bl|

[GIORGIA]_T [LINGUIST]_F [RAQUEL]_T [INTERPRETER]_F.

'Giorgia is a linguist and Raquel is an interpreter.'

ii) *Selective contrast* provides an alternative that has been previously selected from two or more overt alternatives. It is expressed through the same markers: left and right body leans and head tilts, the use of signing space, plus a head nod addressed towards the side where the selected alternative is placed, as illustrated in (26) repeated below as (32).

(32) What is the woman doing: riding a bike or riding a horse?

|—— right sp|
|—— hn|

right bl+ht

BIKE RIDE

'Riding a bike.'

iii) *Corrective contrast* provides an alternative that is true and substitutes a previous overt alternative which is considered false by the interlocutor. This type of contrast is expressed again with the same markers: left and right body leans and head tilts, the use of signing space, plus a strong head thrust emphasizing the correction, as shown in (29) repeated below as (33).

(33)   The sea is yellow.
                       right sp
             hthr   hthr
                    right_bl+ht
     NO, SEA SPECIFIC BLUE.
     'No, the sea is blue.'

We argue that the head nod added in selective contrast triggers an exhaustive reading, and the additional head thrust found in corrective contrast triggers an exhaustive and contrary-to-expectations reading. The classification proposed here is also compatible with Umbach's classification, who distinguishes between contrast and correction based on the different presuppositions they trigger. The difference in our proposal and Umbach's analysis is that she refuses the idea of having a unique notion of contrast. However, LSC show the contrary: all types of contrast analysed here are expressed through the same markers: body leans, head tilts and the use of signing space triggering the similarity plus dissimilarity interpretation. The additional markers identified before in some contexts (head nods and head thrusts) correlate with different interpretations in terms of exhaustivity, related with the selection of an alternative, and expectations, related to the correction of an alternative. In sum, the fact that all types of contrast share the same combination of prosodic and morphophonological markers may be seen as evidence that we are dealing with a unique notion with different degrees of contrastiveness, as claimed in Destruel & Velleman (2014).

7. Conclusions
LSC makes use of syntactic, prosodic and morphophonological strategies in order to express focus and contrast. Contrast in LSC may overlap with both topics and foci and it is always marked through left and right head tilts and body leans, and the use of the opposite sides of the signing space. This combination of markers is found in all instances of contrast in LSC. Other head movements are sometimes added to this combination of markers triggering different types of contrast: a repeated head nod is found in selective contrast instances, triggering an exhaustive reading, and a strong head thrust is found in corrective contrast cases triggering a contrary-to-expectations reading (Table 2).

Contrast types	Contrast markers	Semantic interpretation	Overlapping with other IS notions and their markers
Parallel contrast	Body leans/head tilts and the use of opposite sides of space	Similarity plus dissimilarity	Topic (+raised eyebrows and clause initial position)
			Focus (+raised eyebrows or clause final position and mouthing)
Selective contrast	Body leans/head tilts and the use of opposite sides of space **+ head nod**	Similarity plus dissimilarity + **exhaustivity**	Focus (+raised eyebrows or clause final position and mouthing)
Corrective contrast	Body leans/head tilts and the use of opposite sides of space **+ head thrust**	Similarity plus dissimilarity + exhaustivity **+ contrary expectations**	Focus (+raised eyebrows or clause final position and mouthing)

Table 2. Contrast classification

The results obtained from this research fill a gap in the LSC literature by describing contrast encoding in the language, and, more broadly, they contribute to a better understanding of IS notions in languages in general, regardless of their modality. From a typological perspective, the fact that in LSC the marking of contrast is the same for both focus and topic may be seen as empirical evidence to support the semantic-pragmatic theories that treat contrast as a separate category in IS. The claim that there is a separate notion of contrast is further supported by the fact that there are different types of contrast, which are expressed with the same combination of markers differing only in the addition of some NMMs in more marked contrastive contexts. All in all, we give empirical evidence that support semantic-pragmatic theories of contrast by means of the correlation between prosodic and morphophonological markers and different semantic interpretations.

9. Acknowlegments

REFERENCES

Barberà, G. (2012). *The meaning of space in Catalan Sign Language (LSC): Reference, specificity and structure in signed discourse*. PhD dissertation, Universitat Pompeu Fabra [Published as a monograph in 2015, Berlin and Nijmegen: De Gruyter Mouton and Ishara Press]. [link]

Barberà, G., Quer, J. & Frigola, S. (2015). Primers passos cap a la documentació de discurs signat. El projecte pilot de constitució del corpus de la llengua de signes catalana. *Treballs de Sociolingüística Catalana* 25, 287-302. [link]

Crasborn, O. & Van der Kooij, E. (2013). The phonology of focus in Sign Language of the Netherlands. *Journal of Linguistics* 49(3), 515-565.

Destruel, E. & Velleman, L. (2014). Refining contrast: Empirical evidence from the English it-cleft. *Empirical Issues in Syntax and Semantics* 10, 197-214. [link]

É. Kiss, K. (1998). Identificational Focus versus Information Focus. *Language* 74, 245-273.

Herrmann, A. (2013). Focus particles in sign languages. In: A. Herrmann, M. Steinbach & U. Zeshan (eds.), *Modal and Focus Particles in Sign Languages*. De Gruyter Mouton – Ishara Press, 221-337.

Herrmann, A. (2015). The marking of information structure in German Sign Language. *Lingua* 165, 277-297.

Kimmelman, V. (2014). *Information Structure in Russian Sign Language and Sign Language of the Netherlands*. PhD Dissertation. University of Amsterdam. [link]

Kimmelman, V. & Pfau, R. (2016). Information structure in sign languages. In: C. Féry & S. Ishihara (eds.), *The Oxford handbook on information structure*. Oxford: Oxford University Press.

Krifka, M. (2007). Basic notions of information structure. In C. Féry & M. Krifka (eds.), *Interdisciplinary Studies of Information Structure* 6, Potsdam, 2007. [link]

Littell, P. (2010). Thank-You Notes. Retrieved from www.totemfieldstoryboards.org on April 25, 2016.

Neidle, C. (2002). Language across modalities: ASL focus and question constructions. *Linguistic Variation Yearbook*, 2(1), 71–98.

Nunes, J. & Quadros, R. (2008). Phonetically Realized Traces in American Sign Language and Brazilian Sign Language. In Quer, J. (ed.), *Signs of the Time*. Selected papers from TISLR 8. HAMBURG: Signum. 177-190

Petronio, K. (1993). *Clause structure in American Sign Language*. PhD dissertation, University of Washington, Seattle.

Quer, J. et al. (2005). *Gramàtica bàsica de la llengua de signes catalana*. DOMAD. Federació de Persones Sordes de Catalunya. [link]

Rooth, M. (1985). *Association with focus*. PhD Dissertation, University of Massachusetts, Amherst.

Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics*, 1(1), 75-116.

Sandler, W. (1999). Prosody in two natural language modalities. *Language and Speech*, 42(2&3), 127-142.

Sandler, W. (2012). Visual prosody. In R. Pfau, M. Steinbach & B. Woll. (eds.), *Handbook of Sign Language*. Berlin: De Gruyter Mouton. 55-76

Skopeteas, Stavros et al. (2006). *Questionnaire on Information Structure (QUIS): Reference manual*. ISIS. Working Papers of the SFB. Postdam: Universitätsverlag Postdam.

Steedman, M. (2000). Information structure and the syntax-phonology interface. *Linguistic inquiry*, 31(4), 649-689.

Sze, F. 2008. *Topic constructions in Hong Kong Sign Language*. PhD Dissertation, University of Bristol.

Sze, F. 2011. Nonmanual markings for topic constructions in Hong Kong Sign Language. *Sign Language & Linguistics* 14(1), 115-147.

Sze, F. 2015. Is Hong Kong Sign Language a topic-prominent language? *Linguistics* 53(4), 809-876.

Umbach, C. (2004). On the notion of contrast in information structure and discourse Structure. *Journal of Semantics*, 21(2), 155-175.

Vallduví, E. (1990). *The role of plasticity in the association of focus and prominence*. University of Pennsylvania/ University of Southern California. Unpublished manuscript. [link]

Vallduví, E. & Engdahl, E. (1996). The linguistic realization of information packaging. *Linguistics*, 34, 459-519.

Vallduví, E. & Vilkuna, M. (1998). On rheme and kontrast. In P.W. Culicover, L. Mcnally (eds.), *The Limits of Syntax*. New York: Academic Press. 79-108.

Van der Kooij, E. et al. (2006). Explaining prosodic body leans in Sign Language of the Netherlands: Pragmatics required. *Journal of Pragmatics,* 38, 1598-1614.

Wilbur, R. (1996). Evidence for the function and structure of wh-clefts in American Sign Language. In W.H. Edmondson & R.B. Wilbur (eds.), *International Review of Sign Linguistics*, 209–256.

Wilbur, R. (1997). A prosodic/pragmatic explanation for word order variation in ASL with typological implications. In M. Vespoor, L. Kee Dong & E. Sweetser (eds.), *Lexical and Syntactical Constructions and the Constructions of Meaning*. Amsterdam, Philadelphia: Benjamins, 89-104.

Wilbur, R. (1999). Stress in ASL: empirical evidence and linguistic issues. *Language and Speech*, 42(2–3), 229–250.

Wilbur, R. (2012). Information Structure. In R. Pfau, M. Steinbach & B. Woll (eds.), *Sign Language. An International Handbook* (HSK - Handbooks of Linguistics and Communication Science). De Gruyter Mouton, 462–489.

Zorzi (2018). *Coordination and gapping in Catalan Sign Language (LSC)*. PhD Dissertation. Universitat Pompeu Fabra.