Focus and contrast in Catalan Sign Language (LSC)

Form and interpretation

Alexandra Navarrete González

TESI DOCTORAL UPF / 2021

DIRECTORS DE LA TESI

Dra. Gemma Barberà i Dr. Josep Quer

DEPARTAMENT DE TRADUCCIÓ I CIÈNCIES DEL LLENGUATGE

Universitat Pompeu Fabra Barcelona

Als meus pares,

a l'Aday,

i al petit que vindrà

Acknowledgements/ Agraïments / Agradecimientos

When I started learning Catalan Sign Language in 2004 I could not imagine that it would take me this far. Since then, I have met a lot of people who have influenced in different ways the thesis that you are about to read. I want to thank all these people in these pages.

First, I would like to thank my supervisors Gemma Barberà and Josep Quer. I could not have chosen better researchers to guide me in this journey. Your deep knowledge in linguistics and sign languages combined with your kindness and empathy make the both of you such a great team. Gemma, we met many years ago when I was studying my vocational training in SL interpretation and you were my tutor. At that time I was not going through a good moment in my life. Still, you always believed in my potential and tried to enhance it. I took my first linguistics classes from you and there I discovered what I really wanted to do in my professional life. Some years later I started studying Applied Languages at UPF and you became a mentor and an example to follow until now, both professionally and personally. I cannot imagine going through these years without your guidance. *Mil gràcies de tot cor*!

Josep, I am so grateful for all the opportunities that you have given me. Being part of the SIGN-HUB project has been such an honour. You have always trusted me in everything I was doing both related to my thesis and to the project. Also, you have always been

so positive about my work (even more than I did!) and respected my ideas even though sometimes they might be different from what you would have done. *Moltíssimes gràcies!*

I also want to thank the LSC Lab and LSC UPF Actua members: Cristina Gelpí, Jordina Sánchez-Amat, Sara Cañas, Giorgia Zorzi, Raquel Veiga, Joana Rosselló, Gemma Barberà, Josep Quer, Santi Frigola, Delfi Aliaga, Erendira Cervantes, Margherita, Berta Moya, Aida Villaécija, Ryan Simoens, David Falguera, Bahtiyar Makaroğlu, Anderson Almeida, Fabiola Otarola, Sílvia Gavarró, and Marianthi Koraka.

Sara, our talks have been revealing in so many ways. *Gràcies, bonica!* Berta, we have shared the last years of this journey and it's been so nice to meet you. I have learnt so much from you. *Ets una passada!* Giorgia, thanks for the chocolates and the hugs in the "rainy" days. Raquel Veiga, you have not only been an office mate, but a true friend during all these years. One of the most beautiful things I got from this process has been meeting you. We have shared so many unforgettable moments together. Also, you have been the greatest support one could ever have, especially in the final steps of this program, which, of course, we have experienced at the same time. *Moitas grazas! Esto solo ha sido el principio de una bonita amistad.*

Santi i Delfi, también os agradezco especialmente que hayáis compartido vuestra lengua y vuestras intuiciones conmigo. Este trabajo es para vosotros y todos los miembros de la Comunidad Sorda. ¡Gracias por todas las horas que me habéis dedicado!

I am also very grateful to GLiF members for the discussions on my topic and the nice moments at seminars, lunches and *calçotades*. I have learnt so much from you all. I especially thank Laia Mayol for dedicating many moments of her time to discuss my results and for giving me ideas to continue exploring the topic.

I also want to thank Pilar Prieto from GrEP for having been interested in discussing some parts of my thesis and for dedicating me some moments in her busy schedule. *Moltes gràcies, Pilar!*

Thanks to my office mates with whom I have shared lots of office hours and very special moments, both of joy and sometimes of despair. Chenjie Yuang, Kata Wohlmuth, Toni Bassaganyas, Josep Ausensi, Giorgia Zorzi, Raquel Veiga, Berta Moya, Sara Cañas, Margherita Greco, Lucas Weber, and Xixian Liao.

I also want to thank other PhD students of the second floor: Zhi Huang, Antonia Tovar, Clara Subirats, Laura Aina, Ionut-Teodor Sorodoc, Ingrid Vilà-Gimenez, Florence Baills, Ïo Valls, Núria de Rocafiguera, Rut Benito, Fenrong Yang. Special thanks to Ingrid Vilà-Giménez for being so supportive. The moments we have shared have been so special.

The development of this thesis and all the activities around it have been possible primarily thanks to the SIGN-HUB project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 693349, to the Spanish Ministry of Economy and Competitiveness and FEDER

Funds (FFI2015-68594-P), and to the Government of the *Generalitat de Catalunya* (2014 SGR 698).

A huge thank you goes for Lali Ribera, with whom I have shared (and still do) many afternoons working on the LSC Corpus, trying to classify unclassifiable stuff. Thanks for our deep conversations; your wisdom has helped me so many times during these years. *Mil gràcies! Seguirem caminant en aquest projecte plegades (a ser possible amb les dues cames!).*

Other researchers that have deeply influenced my work with their advice in conferences and meetings are Annika Herrmann, Vadim Kimmelman, Roland Pfau, Xavier Villalba, Elena Castroviejo, and Lisa Brunetti. Thank you so much for your comments and suggestions.

Thanks also to Malte Zimmermann, who was my tutor during my research stay at the University of Potsdam, and to the semantics group: Marta Wierzba, Joseph De Veaugh, Mareika Philipp, Johannes Schneider, Mira Grubic, and Carla Bombi. I learnt so much from Malte and I am extremely happy I chose that destination. It could not have been better. Special thanks to Carla Bombi for being so welcoming and for the Friday drinks. *¡Te debo un concierto!*

During my research stay I had the chance to meet other wonderful researchers: Carla Umbach, Cornelia Ebert, and

Christian Rathmann. I specially thank Carla Umbach for all the hours that she devoted to discussing my research. *Danke Schön!*

Many thanks to all PhD students and other researchers that I have met during these years. Katie Frasier, Flora Lili Donati, Daria Serés, Evripidis Tsiatmakis, Laura Vela-Plo, Ruoying Zhao, Sara Amido, Miguel Ángel Sampedro, Nizar Kasmi Ismail, and many more. It has been so nice and fun meeting you all around Europe!

Gracias a los alumnos de Cerecusor por el buen acogimiento y el cariño recibido mientras di clases allí. Nuestras clases eran un soplo de aire fresco en medio de esta carrera de fondo. Gracias también a los alumnos del curso de especialista docente de LSC por proporcionarme brillantes intuiciones como nativos de la lengua que me han hecho reflexionar sobre más de un tema.

Als meus amics Anna, Lidia, Jordi i Natalia els dono les gràcies i els demano perdó per tots els "no puc" quan m'han proposat plans. Anna, mil gràcies per confiar en mi i per les nostres xerrades profundes que m'han servit sempre de tant.

Gràcies a "les trimestrals" (Mireia Bartolí i Mireia Isal) per les nostres trobades trimestrals que van acabar sent anuals i virtuals. Gràcies pel suport, noies!

A mis amistades de Camarena de la Sierra les agradezco los veranos mágicos que hemos pasado juntos. Especialmente a Eixchélt y Marieta por creer en mí cuando estaba agotada y con ganas de tirar la toalla, a Raquel por los paseos por la montaña

después de horas escribiendo, y a Dani y Lorena por las risas de siempre.

Por último, le doy las gracias a mi familia. A mis abuelos, que aunque no estén ya presentes siempre lo están en mis pensamientos, les agradezco todo lo que me enseñaron en vida. Especialmente a mi yayo Emiliano, un ejemplo de resiliencia, cuya vida me ha enseñado que dentro de las derrotas también hay victorias que recordar. A mis padres les estoy agradecida por apoyarme siempre de todas las maneras posibles, a pesar de todos los momentos que hemos perdido juntos estos años, y también por recordarme con sus experiencias vitales que el trabajo no es siempre lo más importante. Me lo habéis dado todo y no hay suficiente espacio aquí para agradecerlo. Y, por último, a Aday, que incondicionalmente ha estado a mi lado sin dudar ni un segundo de mí, ha aguantado demasiados fines de semana sin planes de pareja porque yo tenía que escribir y ha sufrido los momentos tensos como si fuera su propia tesis. Gracias por tu apoyo, ahora nos toca a nosotros y a nuestro proyecto de vida. *T'estimo molt*.

Abstract

This thesis provides a description and a pragmatic analysis of the expression and interpretation of focus and contrast in Catalan Sign Language (LSC). I argue that LSC data provides empirical evidence that contrast is an independent notion in Information Structure that can overlap with topics and foci, and that involves different types, which are built compositionally. All types of contrast share a basic meaning (semantic parallelism), which is essential for an element to be contrastive, and which is expressed through a specific combination of non-manual markers (NMMs). Additional prosodic NMMs are used to trigger more complex meanings, like exhaustivity or counterexpectation. Moreover, a first description of focus particles and clefts in LSC is provided, together with a pragmatic analysis of exhaustivity and non-truth conditional meaning (presuppositions and implicatures) in these constructions.

Resum

Aquesta tesi proporciona una descripció i una anàlisi pragmàtica de l'expressió i la interpretació del focus i el contrast en llengua de signes catalana (LSC). Defenso que l'LSC aporta proves empíriques que el contrast és una noció independent en el camp de l'estructura informativa que se solapa amb el tòpic i els focus de l'oració i que es pot dividir en subtipus que es conformen de manera composicional. Tots els tipus de contrast comparteixen un significat bàsic (paral·lelisme semàntic), que és imprescindible perquè un element sigui contrastiu i que s'expressa a través d'una combinació

específica de marcadors no manuals (MNM). MNM addicionals són emprats per expressar significats més complexos, com ara l'exhaustivitat i la contraexpectació. A més, s'ofereix una primera descripció de les partícules focals i les oracions clivellades en LSC, i una anàlisi pragmàtica de l'exhaustivitat i el significat no veritatiu-condicional (implicatures i pressuposicions) que es deriva d'aquestes construccions.

Resumen

Esta tesis proporciona una descripción y un análisis pragmático sobre la expresión y la interpretación del foco y el contraste en lengua de signos catalana (LSC). Defiendo que la LSC aporta pruebas empíricas de que el contraste es una noción independiente en el campo de la estructura informativa que se solapa con el tópico y el foco de la oración y que se puede dividir en subtipos que se constituyen de manera composicional. Todos los tipos de contraste comparten un significado básico (paralelismo semántico), que es imprescindible para que un elemento sea contrastivo y que se expresa a través de una combinación específica de marcadores no manuales (MNM). MNM adicionales son utilizados para expresar significados más complejos, como la exhaustividad y la contraexpectación. Además, se presenta una primera descripción de las partículas focales y de las oraciones escindidas en LSC, así como un análisis pragmático de la exhaustividad y del significado no veritativo-condicional (implicaturas y presuposiciones) que se deriva de estas construcciones.

Table of contents

List of abbreviations

Abbreviations of sign languages

ASL	American Sign Language
DGS	*Deutsche Gebärdensprache*, German Sign Language
KRSL	Kazakh-Russian Sign Language
HKSL	Hong Kong Sign Language
ISL	Israeli Sign Language
IrishSL	Irish Sign Language
LIS	*Lingua dei Segni Italiana*, Italian Sign Language
LSB	Brazilian Sign Language
LSC	*llengua de signes catalana*, Catalan Sign Language
LSE	*lengua de signos española*, Spanish Sign Language
LSF	*Langue des Signes Française*, French Sign Language
NGT	Nederlandse Gebarentaal, Sign Language of the Netherlands
RSL	Russian Sign Language

General abbreviations

AS	Alternative Semantics
BN	Bare noun
EF	Emphatic focus
CF	Contrastive focus
CG	Common Ground
CT	Contrastive topic
DS	Discourse Structure
FP	Focus particle
IF	Information focus
IS	Information Structure
NMM	Non-manual marker
NP	Noun phrase

QUD	Question Under Discussion
SF	Selective focus
SL	Sign Language
SMA	Structured Meaning Account

Notational conventions

General annotation

LINGUIST	Lexical sign
HORSE+++	Reduplication of the sign
IX#	Pronominal index; the number corresponds to 1st, 2nd or 3rd person
#ADVICE#	Agreement verb inflected; the number corresponds to 1st, 2nd or 3rd person
CL	Classifier
EAT^NOT	Cliticization of a verb and a negation
[POTATOES]$_F$	Focus scope
[RAQUEL]$_T$	Topic scope

Annotation of non-manual markers (NMMs)

re	raised eyebrows
fe	furrowed eyebrows
bl	body lean
bs	body shift
ht	head tilt
hn	head nod
hthr	head thrust
hs	Head shake
sp	space
mth	mouthing
we	wide eyes
rhq	rhetorical question
sq	squinted eyes
cl	contralateral
ip	Ipsilateral
+	combination of NMMs

1 INTRODUCTION

Up to now few studies have directly addressed the description of Information Structure (IS) notions in Catalan Sign Language (LSC) (Navarrete-González 2016, 2019). Some studies have described some markers of contrast that have been found while describing other topics and/or structures that may mark or involve contrast, like the use of signing space (Barberà 2007, 2015) and coordinated structures (Zorzi 2018).

1.1 Goals

This thesis aims at providing a more comprehensive study on the notions of focus and contrast as well as a pragmatic analysis of these notions and the related structures that are used to express them. The general goals of this thesis are the following:

Goal 1: Description of focus and contrast markers in LSC.
This dissertation shows that there are different syntactic and prosodic structures for the expression of focus. Contrast has a strong tendency to be marked with a specific combination of non-manual markers (NMMs) even in subordinate clauses while the marking of focus is more varied and less systematic when it is not contrastive. It is also shown that some linguistic restrictions may block the appearance of contrast markers.

Goal 2: Pragmatic analysis of different contrast types (parallel contrast, selective contrast and corrective contrast) and the correlation between prosodic markers and pragmatic interpretations in each of the types.

This thesis provides evidence that some additional head movements in selective and corrective contrast (and instances of parallel implicit contrast with 'even') trigger additional pragmatic interpretations: exhaustivity and counterexpectation. Contrast is a single notion that involves different types, which are built compositionally, since different interpretations such as exhaustivity, counterexpectations, and parallelism are combined to form specific discourse relations.

Goal 3: Description and pragmatic analysis of elements and structures that trigger exhaustivity: focus particles and clefts.

a) This thesis shows that focus particles are expressed through different lexical signs and specific NMMs in LSC and are common triggers of conventional implicatures and presuppositions.

b) Two types of clefts are described and analysed (clefts and pseudoclefts). It is shown that exhaustivity in clefts in LSC is easily cancelled since it is calculated via a conversational implicature. This finding poses some problems for semantic traditional analysis that treat exhaustivity as an inherent feature of the syntactic structure of clefts. It is also shown that signers

calculate scalar implicatures differently to spoken language speakers due specific modality devices: the use of signing space and classifier constructions.

1.2 Catalan Sign Language

Catalan Sign Language (LSC) is the language of the signing Deaf and Deaf-blind community in Catalonia. This community is formed by around 25,000 signers, from which 12,000 are deaf (Quer 2010). LSC is legally recognized in Spain together with Spanish Sign Language (LSE); however, in Catalonia, signers use only LSC, so there is no bilingualism LSC-LSE (Barberà 2015). The Catalan Parliament passed a law in 2010 (Llei 17/2010) in which the right to use LSC in every area of life is recognized (Quer 2010). Following this law, *Institut d'Estudis Catalans* –the Catalan Academy, in charge of the normativization and normalization of the Catalan language– was assigned the responsibility of normalizing, normativizing, and promoting research on LSC in Catalonia.

1.3 Methodology

The data analysed in this thesis have been collected through a combination of different methods, following Matthewson's (2004) considerations for conducting semantic fieldwork. Most of the data have been obtained through elicitation tasks, but corpus observation has been also a valuable source for the compilation of more

naturalistic data, especially for the collection of data on focus particles and for validation of results from elicitation tasks. Below the two main methods are presented.

1.3.1 Elicitation tasks

Different tasks were combined in the elicitation sessions for the purpose of collecting instances of focus and contrast in LSC. Some of the tasks were designed inspired by the methodology used in Kimmelman (2014) and Herrmann (2013). Moreover, some of the tasks were adapted on the basis of the *Questionnaire for Information Structure* (QUIS) (Skopeteas et al. 2006) developed at the University of Potsdam, and the Totem Field Storyboards (TFS)[1]. Different types of elicitation tasks were conducted: i) picture elicitation tasks, ii) storyboard and story-telling tasks (monologues and dialogues), iii) translations, and iv) felicity judgments.

1.3.1.1. Participants

Elicited data have been provided primarily by two deaf native signers of middle age, a woman and a man, raised in Catalonia and educated in special schools for the deaf, where LSC was the main language of communication among pupils. Both participants are acquainted with sign language research and actively participate in research projects.

[1] http://totemfieldstoryboards.org/

1.3.1.2. Picture elicitation task

31 sentences were elicited using visual stimuli from the *Questionnaire for Information Structure (*QUIS*) (*Skopeteas et al. 2006) (Figure 1.1). 30 items (questions about the visual stimuli) were created to elicit different types of focus and contrast and different focus scopes: subject-focus, object-focus, verb-focus, VP-focus, and sentence focus. For this task, 31 sentences[2] were elicited and analyzed in total. Questions were specifically designed to trigger different types of answers:

a) 10 questions were seeking for plain information ('What are the woman and the man doing?')
b) 10 questions were forcing the signer to select between two alternatives that were included in the question ('What is the woman riding: a horse or a bike?'), and
c) 10 questions contained false information that the signer needed to confirm or refute ('The man is riding a bike, right?').

These questions were thought to elicit minimal pairs between information focus and parallel contrast (a), selective contrast (b), and corrective contrast (c).[3]

[2] One of the questions triggered two different answers and that is the reason why the total number of elicited sentences is 31 and not 30.

[3] This elicitation task was based on the methodology used in Kimmelman (2014) for eliciting focus types.

Figure 1.1. Picture from the *Questionnaire for Information Structure*

In the procedure signers were shown a picture, and then they were asked a question in LSC related to that picture. They were videotaped while answering the questions. Items were randomly presented to avoid biases in the answers and the task was conducted individually with each participant. Results were consistent across both informants.

A difficulty I ran into while conducting this task is that informants refused to answer with complete sentences questions related to information focus. Their first reaction was to say that that type of answer was not natural in LSC, especially in information focus sentences.

1.3.1.3. Storyboard and story-telling tasks

The goal of these tasks was to obtain more naturalistic data in the context of a monologue or a dialogue. Two storyboards from the Totemfield Storyboards (Littell 2010)[4], created specifically for the elicitation of contrastive focus (CF) and other IS notions, were used for the elicitation of these data. Participants had to engage in a dialogue based on the storyboards presented. 16 tokens that involved contrast were analysed from both storyboards.

Moreover, two monologues were recorded in which signers retell two mute short films (*Extinguished* and *Alike*)[5]. Both films included contrasted referents for both topic and focus. The stories used were specifically selected for this research since all of them involved two referents that were consistently contrasted across the narration. Therefore, even though it was a freer discourse, they produced contrastive topics and contrastive focus as expected. 33 examples were obtained from both monologues: 26 instances of parallel contrast, and 7 examples which contained contrast with opposition between the alternatives.

1.3.1.4. Translation task

In this task, signers were asked to translate a sentence that was presented in written Spanish[6]. The procedure was the following:

[4] The materials used in this task are included in the Appendix.

[5] Find the links to the films in the Appendix.

[6] Spanish is the spoken language that participants are more proficient in.

signers were provided with a context in LSC and afterwards, they were asked to translate a sentence in relation to that context from Spanish to LSC. It was made clear to the informants that the target written sentence should be seen as a metalanguage (Matthewson 2004): to consider the target sentence as an input from which they should aim to find the most natural equivalent in LSC for the given context.

215 tokens were obtained and analysed from this task: 120 involving parallel contrast, 34 involving selective and 61 involving corrective contrast. The number of parallel contrast tokens is higher than the rest, since I was interested in analysing different types of parallel contrast: structures involving additive focus particles like *also* or *even*, in addition to the basic parallel contrast with *and*.

1.3.1.5. Felicity judgment task

Data that were collected through the previous elicitation tasks were rated by the informants weeks later to ensure consistency in the results. Each piece of data was presented again with a signed context, and informants had to rate the felicitousness of the sentences in relation to that context in a binary way: felicitous vs. infelicitous.

1.3.2 Annotation of the Data

Data elicited in the previous tasks were videotaped and annotated using ELAN. This annotation tool is very common among sign language researchers since it allows to synchronize linguistic tiers

with video files. In Figure 1.2 an annotation of an information focus sentence in ELAN is shown. Different linguistic tiers were created for the annotation of the most relevant linguistic information of the data elicited: i) transcription of the LSC sentences into English glosses, ii) syntactic structure, iii) focus scope, iv) focus and/or contrast type, v) the most relevant non-manual markers: eyes, eyebrows, head movements, body leans, and mouthing and mouth gestures –which were separated in different tiers–, and vi) location of the signs in signing space: rightward, leftward, forward or backward. A specific tier named 'Comments' was also created for any relevant observation that could appear in the process of annotation.

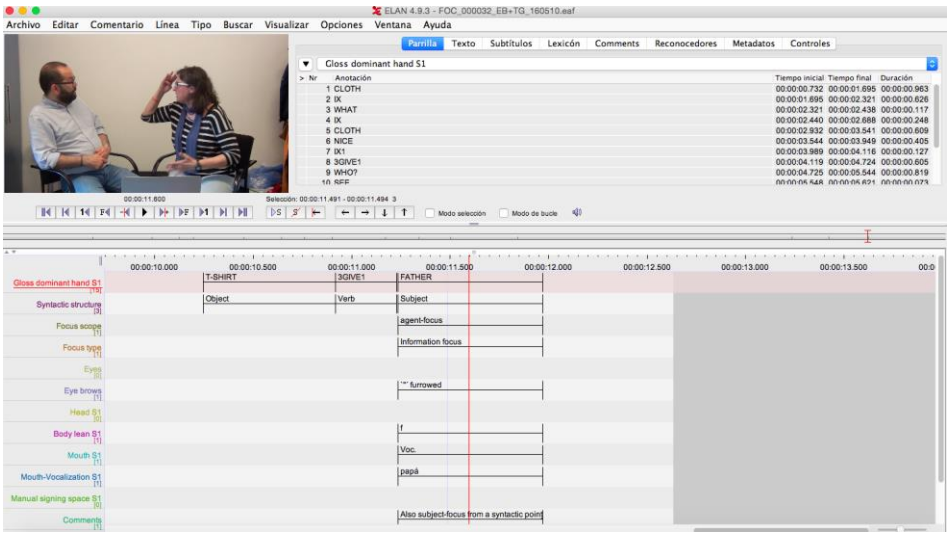


Figure 1.2. Sentence annotated with ELAN.

In brief, the project corpus created from elicited data contains 279 elicited sentences videotaped, which were annotated with ELAN for

the analysis of this study. Some of the videos could not be recorded due to the pandemic situation but they were discussed and confirmed with the informants.

1.3.3 Data collection from the LSC Reference Corpus

Naturalistic data was also collected from the Catalan Sign Language (LSC) Reference Corpus (under development at the *Institut d'Estudis Catalans*, Barberà et al. 2015; Quer 2017) to compare and validate results. The LSC Reference Corpus contains recordings of spontaneous speech from pairs of native or near-native Deaf LSC signers from three different groups of age: i) 18-30, ii) 30-50, and iii) 50-80. 8 different tasks, which trigger different LSC structures, were recorded and annotated with ELAN (see Barberà et al. 2015 for more information on the tasks).

In total 7 tasks were consulted. They had been carried out by 13 different signers, whose codes are NC, DT, KD, DU, CS, CG, QF, BN, KW, DT, BQ, KS and FN. 20 sentences that contained contrast were obtained. They were produced by three different signers narrating the story *Frog, Where Are You?* (task number 2). These sentences showed that marking for contrast found in elicited data was also present in corpus data for parallel contrast across topics and focus. No selective or corrective focus was found in these narrations, due to the story line. 72 tokens that contained focus particles were found after a search in narratives produced by 13 signers in 7 different tasks. In sum, a total of 92 tokens were obtained from this search that contributed to the analysis of

different subtopics of this thesis. In this thesis examples extracted from the corpus indicate the following information: CORP (corpus), task number, signer(s) code, annotation time. Even though the Corpus is not published online yet, it will be soon available to the general public.

1.4 Structure of this thesis

The main chapters of this dissertation are written in a parallel way. They first present a theoretical framework in which the description and analysis is based, and then the description and analysis in LSC data is presented. This thesis is structured as follows:

Chapter 2 presents the background literature in SLs needed to understand and develop each of the following chapters of this dissertation. It briefly presents the controversy on the definitions for the terms of IS and it offers a non-exhaustive summary on the studies on focus and contrast in SLs and related structures: focus particles and clefts, which will be described and analysed for LSC in each of the following chapters. It also presents the proposal of this dissertation.

Chapter 3 provides a description and analysis of focus in LSC. It first presents the theoretical framework in which the chapter is based and then it shows the syntactic and prosodic markers involved

in the expression of focus as well as how focus is interpreted in different contexts in LSC.

Chapter 4 develops a theory of contrast in LSC. It first presents the theoretical framework in which the chapter is based. Then it describes contrast markers in three different types of contrast: parallel contrast, selective contrast, and corrective contrast, and it analyses the correlation between the prosodic markers and pragmatic interpretations. Based on empirical data, it claims that contrast is an independent category in IS and provides further evidence from the analysis of coordinate and subordinate structures in LSC.

Chapter 5 is devoted to the description and analysis of focus particles in LSC. It first presents the theoretical framework in which the chapter is based, as each of the previous chapters, and it provides a description of three types of focus particles: additive focus particles, additive scalar focus particles and restrictive focus particles. It also analyses how focus particles in LSC may trigger conventional implicatures and presuppositions.

Chapter 6 offers a first insight in the description and analysis of cleft structures and exhaustivity in LSC. Again, it first presents the theoretical framework in which the chapter is based. Then it provides a brief description of two types of clefts: clefts and pseudoclefts. Lastly, it offers a pragmatic analysis of exhaustivity in clefts and other constructions and an analysis of non-truth

conditional meaning, namely presuppositions and scalar implicatures.

2 FOCUS AND EXHAUSTIVITY STRUCTURES

This chapter offers a general overview of the theoretical background and discussions around focus, contrast and exhaustivity in both spoken languages and sign languages (SLs) that have influenced the research conducted in this thesis. Section 2.1 offers a discussion on the definitions of the main IS notions: *topic*, *focus* and *contrast*. Section 2.2 presents previous approaches to the study of focus and contrast in SLs. Section 2.3 offers a brief overview of the research conducted on focus particles in SLs. Section 2.4 focuses on literature of clefts and exhaustivity in SLs. Lastly, section 2.5 presents the proposal and contribution of this dissertation.

2.1 Defining IS notions

Information structure (IS) (also referred to as *information packaging*) is the general term used to describe the structuring of information in discourse. In order to adapt to different mental states and fulfil the communicative demands of a particular context, the sender structures sentences in different ways using syntactic, prosodic, and morphological strategies (Vallduví 1992, 1995; Vallduví & Engdahl 1996).

Research on IS started with Mathesius in the beginning of the twentieth century (Féry & Ishihara 2016), and after all these years

of research there is still debate about the nature of IS notions. There is no agreement in the definitions used in the literature nor uniformity in the terms used to refer to the same or similar concepts. The fact that IS concepts are pragmatic notions that manifest themselves in quite different forms in all languages studied to date have hindered the establishment of clear definitions in the field. This section aims at clarifying the terms and definitions used in this thesis by offering a brief (non-exhaustive) overview of different approaches to IS categories and the main controversies around them.

2.1.1 Topic

The notion of topic is defined in many different ways in the existing literature. A widely accepted definition is the following: topic is the portion of information that determines what the sentence is about (Hocket 1958; Reinhart 1981; Gundel 1974). Sentences (1) and (2) below, from Vallduví (1992), illustrate this notion of 'aboutness' topic, identified as the constituent to the left of the vertical line.

(1) John | ran away.

(2) That new book by Thomas Guernsey | I haven't read yet.

Reinhart (1981) defined topic through the metaphor of file cards. The topic was represented through a file card under which the comment was stored in the context. Under this view, topic also

serves the purpose of organizing and classifying information in discourse. It has also been generally argued that topics usually present old or given information. Following Reinhart (1981), Vallduví & Engdahl (1996) argue that the *topic* is the portion of the discourse that acts as an anchor to the previous discourse or the addressee's mental world, and the *comment* is the one that makes some new contribution. Topicality thus has often been considered to reflect the salience and/or status of an entity in discourse with respect to its presence or absence in the previous discourse (Givón 1983).

More recent studies have provided more fine-grained analyses that shed some light on the notions of givenness and newness and how they apply to notions such as topic and focus. Gundel & Fretheim (2004) claim that the notions of givenness and newness are of two kinds: relational and referential. Referential givenness-newness is defined as involving "a relation between a linguistic expression and a corresponding non-linguistic entity in the speakers/hearer's mind, the discourse (model), or some real or possible world, depending on where the reference or corresponding meanings of these linguistic expressions are assumed to reside" (Gundel & Fretheim 2004: 2). Relational givenness-newness instead is defined as involving "a partition of the semantic/conceptual representation of a sentence into two complementary parts, X and Y, where X is what the sentence is about, and Y is what is predicated about X […]. X is given in relation to Y in the sense that it is independent, and outside the scope of, what is predicated in Y. Y is new in relation to X in the sense that it is new information that

is asserted, questioned, etc. about X." (Gundel & Fretheim 2004: 2). Taking into account this distinction topic is always relationally given in contrast to focus, which is always relationally new. However, referentially, both notions may be given or new.

Reinhart (1981) also supports this claim taking as an example (3) below, where the topic is a specific indefinite ('an old preacher down there') that is relationally given but not referentially given, just referential.

(3) An old preacher down there, they augured under the grave where his wife was buried.

(Prince 1985: 74)

More recently, topic (and other IS notions) has been defined through the Question Under Discussion (QUD) theory (Roberts, 2012). Very roughly, this theory states that each sentence in discourse addresses or answers a question, which is often implicit. Vallduví (2016) argues that the question under discussion (qud) update is a two-step process: in the first step the topic (*theme* in his terms) prepares the update from C_1 to $C_{1'}$, it promotes a given qud to qud-maximality; in the second step the rheme actually updates $C_{1'}$ to C_2 by elaborating on this max-qud$_{C1'}$. In example (4) below two types of answers are illustrated: (4b) is a fragment answer that only contains the rheme (is themeless), (4c) instead is a complete answer that includes the theme, since it is replicating max-qud$_{C1}$.

(4)

a. max-qud$_{C1}$: ?:λx.have-for-dinner(A+B, x)

b. B: [$_{R}$ MUTTONBIRD].

c. B': [$_{T}$ We are having] [$_{R}$ MUTTONBIRD] [$_{T}$ for dinner]

(Vallduví, 2016: 8)

Vallduví (2016) also claims that themes are obligatory in cases where quds are already in the qud set but have lost their maximality, the theme raises again the qud to qud-maximality to enable its elaboration by the rheme. In (5) the qud introduced in (5c) is self-answered in (5e). By the time it is self-answered it has lost its maximality due to all conversational moves in (5d), so it is necessary to spell out the theme in order for the sentence to be felicitous.

(5)

a. Jenny: Do you want an egg?

b. Bernard: Are you having one?

c. J: *Do you want one?*

d. B: If you're having one, I will, otherwise no.

J: You are a lazy devil.

B: No, it's just that I don't want an egg enough to start everything going towards cooking it, but if you were going to do one for yourself, well, I'd want it enough for that.

J: I don't think I'll have one.

B: I'll do you one if you like.

e. J: [$_{T}$You] [$_{R}$DO] [$_{T}$want one].

f. B: No, I don't. I'll just do you one. You ought to eat.

(Vallduví 2016: 9)

Even though my research is not focused on the description or analysis of topics, a clear definition must be taken since topics directly interact with the rest of IS notions that I aim to describe. A consistent identification of topics thus is a must in order to accurately describe and analyse focus and contrast. In this dissertation I identify topics as being relationally given elements that may serve as an anchor to the previous discourse, following Reinhart's (1981) and Gundel & Fretheim's (2004) definitions. Vallduví's (2016) proposal based on the QUD theory is completely compatible as well.

2.1.2 Focus

Focus is commonly defined as the part of the sentence that presents new, dominant, or contrary-to-expectation information in discourse. By contrast, the *ground* refers to the part of the sentence that provides shared information (Vallduví & Engdahl 1996).

As shown in the previous definitions, focus is traditionally associated with new information; however, some nuances on this claim need to be explained. Going back to Gundel & Fretheim (2004) focus is always relationally new but need not necessarily be referentially new. A portion of discourse may be i) new in relation to the previous context since it provides an answer to a specific question, and ii) referentially given, since it may have been already

uttered in the previous context. In examples (6) and (7) *she* and *pork* are referentially given: *she* refers to 'Pat', and *pork* is already mentioned in the previous question. At the same time, both elements are relationally new since they provide new information in relation to the previous discourse.

(6) A: Who called?
B: Pat said *she* called.

(7) A: Did you order the chicken or the pork?
B: It was the *pork* that I ordered.

(Gundel & Fretheim 2004: 3)

In the Alternative Semantics framework (Rooth 1992) focus has been defined as triggering alternatives. This theory assumes that the semantics of focus makes available a set of eligible alternatives: the "focus semantic value" or "alternative semantic value". In (8) below the semantics of the question is the set of propositions '*y* invented calculus'. The antecedent is a set of alternatives. In (9) it is formally stated that i) the ordinary semantic value of the scope of the focus is an element of the antecedent, and ii) the antecedent has cardinality of at least two.

(8) [Who invented calculus$_2$]$_3$
[Leibniz$_F$ discovered it$_2$]~3.

(Rooth 2016: 11)

(9) Alternative licensing
$\phi \sim k$ requires that the semantic element k is either
(i) an element of $[[\phi]]^f$ that is distinct from $[[\phi]]^o$, or
(ii) a subset of $[[\phi]]^f$ of cardinality at least two that includes $[[\phi]]^o$.

(Rooth 2016: 11)

According to the Alternative Semantics framework focus is equivalent to contrast and may overlap with the topic of a sentence, as shown in (10).

(10) Who ate what?

topic	**comment**	
Fred	ate the	beans
focus	**background**	**focus**

(adapted from Büring 2003: 6)

Based on crosslinguistic evidence from Hungarian, Finnish, and Catalan, Vallduví & Vilkuna (1998) claim that new information and contrast (*rheme* and *kontrast*) are in fact separate notions that may overlap with each other. They argue 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 contrastive topics

(CTs). *Kontrast* in this work is analogous to focus in Alternative Semantics.

More recently, Vallduví (2016) argues that rheme is not an interpretive category and that is the reason why it is not associated with a specific realization.

In this dissertation I use the term focus to refer to the portion of the sentence that provides relationally new information to discourse. I separate the notions of focus and contrast as independent IS categories since LSC provides evidence for this distinction. This distinction is analogous to open focus and closed focus (Krifka 2007). More discussion about the notion of focus is provided in chapter 3.

2.1.3 Contrast

In the IS literature there is no agreement about the status of contrast. Some perspectives treat contrast as a feature that may appear together with the topic or the focus of a sentence (Chafe 1976, Kiss 1998), giving rise to different types of focus and topic, like contrastive focus and contrastive topic. From this view there are at least two different types of focus: information focus (IF) and contrastive focus (CF), and two different types of topics: aboutness topics and contrastive topics (CTs), which are distinguished by their syntactic and semantic properties. CF usually occurs in a different syntactic position than IF and is interpreted as exhaustive. Some languages like Hungarian provide evidence for this claim: in (11a)

CF occurs in preverbal position, whereas in (11b) IF is placed in sentence-final position (Kiss 1998).

(11)

a. Tegnap este [Marinak]$_F$ muttatam be Pétert.
last night Mary.DAT introduced.I PERF Peter.ACC
'It was to *Mary* that I introduced Peter last night.'

b. Tegnap este be muttatam Pétert [Marinak]$_F$.
last night PERF introduced.I Peter.ACC Mary.DAT
'Last night I introduced Peter to *Mary*.'

(Kiss 1998: 247)

According to this approach additive focus particles like ‘also’ or ‘even’ cannot combine with a CF, since a CF is interpreted exhaustively, as shown in (12) below.

(12) *Mari [egy kalapot]$_F$ **is** nézett ki magának.
Mary a hat.ACC also picked out herself.DAT
?‘It was also *a hat* that Mary picked for herself.’

(Kiss 1998: 252)

However, this approach is problematic for languages where the marking of contrast is ambiguous, like English or German (Molnár 2002). Also, there are contrastive constructions that are not exhaustive, like parallel constructions. In (13) below there is a non-

exhaustive parallel contrast between ‘linguist’ and ‘interpreter’, so the focus particle ‘also’ is completely acceptable.

(13) Raquel is a [linguist]$_F$ and/but **also** an [interpreter]$_F$.

From a semantic perspective contrast is understood as an independent category that is triggered by the existence of alternatives (cf. Rooth 1992, Vallduví & Vilkuna 1998, Molnár 2002, Krifka 2007, Repp 2016, Umbach 2004). The presence of contrast indicates that there are other relevant alternatives that can be added to the common ground (CG). As already mentioned in section 2.1.2, in some of these works the definition of contrast is the same as the definition of focus in Alternative Semantics (cf. Rooth 1992), where contrast and focus are unified into one single notion: focus. Alternative Semantics framework states that focus is always contrastive because it always triggers alternatives. Krifka (2007) further distinguishes between two types of focus/contrast depending on the type of set of alternatives they belong to: open focus vs. closed focus. The former triggers a set of alternatives that is not identifiable in the context; the latter triggers a closed set of alternatives that is delimited and easily identifiable in the context. This distinction is important in analysing LSC data since LSC shows a specific marking for closed focus, which we identify as the marking for contrast. From this view, focus/contrast can also be present in topics whenever there are salient contrasted alternatives that are relevant in the CG (cf. Büring 2003).

The unifying approach of focus/contrast also poses some problems, though. Many languages, like Hungarian (see (11) above) and Finnish (14), have a specific marking for contrast, a specific position in the sentence (14b), which differs from the one for non-contrastive focus (14a), and thus they do not fit in a unifying approach.

(14)

a. What things did Anna get for her birthday?
   Anna sai [kukkia]$_{F}$.
   'Anna got flowers.'

b. What is it that Anna got for her birthday?
   [Kukkia]$_{CF}$ Anna sai.
   'Anna got flowers.'

(Vallduví & Vilkuna 1998: 90-01)

In light of this, some works highlight the importance of separating new information from contrast (Vallduví & Vilkuna 1998, Vallduví 2016, Molnár 2009). In these studies, contrast is defined as an orthogonal independent notion that is not obligatorily bound to focus and may overlap also with the topic of the sentence.

The diversity of views presented here regarding the definition of contrast can be explained by the heterogeneous forms for expressing it in the different languages studied to date, which leads to different conceptions of this notion. While in some languages contrast is marked by grammatical means, in other languages

contrast does not have an explicit marking. Therefore, it is not an easy task to come up with a unified theory that accounts for all languages studied until now (Repp 2016). Section 4.1.2 presents some theories developed from a semantic perspective that consider this diversity and analyse contrast as a complex notion that conforms different types at different linguistic levels.

In this thesis contrast is understood as an independent category in IS that overlaps with the topic and the focus of a sentence and that arises from the dependency relation between two or more contextually salient alternatives in discourse. Chapter 4 is devoted to the study of this notion in LSC.

2.2 Focus and contrast in SLs

Sign languages are fully-fledged natural languages that present different ways of packaging information in discourse (Kimmelman & Pfau 2016, 2021). Topic is the information-structural notion that has been better studied in SLs. There are studies on ASL (Aarons 1994), HKSL (Sze 2008, 2011, 2015), LIS (Calderone 2020) among others.

The notions of focus and contrast have received less attention than topics in SLs. Nevertheless, there are relevant studies on focus and contrast in American Sign Language (ASL) (Wilbur 1994, 1996, 1997, 1999, 2012, Neidle 2002; Lillo-Martin & de Quadros 2008, Schlenker et al. 2016), Brazilian Sign Language (LSB)

(Nunes & de Quadros 2008), French Sign Language (LSF) (Schlenker et al. 2016), German Sign Language (DGS) (Bross 2018; Herrmann 2013, 2015); Russian Sign Language (RSL) (Kimmelman 2014), and Sign Language of the Netherlands (NGT) (Crasborn & Van der Kooij 2013; Kimmelman 2014; Legeland et al. 2018, van der Kooij et al. 2006).

2.2.1 Previous categorizations of focus

In most studies conducted until now in SLs three types of focus are commonly distinguished: information focus (IF), contrastive focus (CF), and emphatic focus (EF) (Kimmelman & Pfau 2016). Moreover, Kimmelman (2014) further analyses two subtypes of contrastive focus: selective focus and corrective focus.

Information focus is defined as the new information that is required to build discourse. The focused alternative is taken from an open set of alternatives and is not considered exhaustive, since the rest of alternatives are not explicitly excluded but just omitted for different reasons (Wilbur 2012). In (15) below, it is not necessarily the case that signer B only read Stokoe's book. Exhaustivity is said to be inferred but not entailed in this type of focus.

(15)

A: WHAT YOU READ? [ASL]
'What did you read?'

B: I READ BOOK STOKOE.
'I read Stokoe's book.'
(adapted from Lillo-Martin & Quadros 2008: 169)

Contrastive focus has been widely analysed in the context of a correction in SLs (see van der Kooij, 2006; Wilbur, 2012). Based on Repp (2010), Wilbur (2012) defines contrastive focus as being used in situations in which the sender believes that the addressee needs to be given corrected information. The set of alternatives involved in this type of focus is closed and the focused alternative is considered exhaustive. In (16) below Mary is the only alternative that is considered true in that context, so the other alternative (Jane) is automatically excluded.

re

(16) MARY(fs), JIM(fs) LOVE TEASE. [ASL]

[Jim doesn't like to tease Jane.] 'It is Mary who Jim loves to tease.'

(Wilbur 2012: 465)

Kimmelman (2014) also analyses contrastive focus in selective contexts, where the signer has to choose an alternative from a previous set, presented in a question. In example (17) the sign BOY is selected from two alternatives presented in a previous question.

hn

(17) [BOY]$_F$ WALK. [RSL]

'A boy is walking.'

(Kimmelman 2014: 116)

Emphatic focus serves the purpose of expressing emphasis in a particular chunk of information. It is used to negate or affirm information that has been previously presented (Lillo-Martin & Quadros 1998). In SLs it is usually expressed through doubling of the emphasized element (Petronio 1993, Wilbur 1994, Petronio & Lillo-Martin 1997, Quadros 1999), as illustrated in (18) for ASL and LSB.

(18) JOHN **CAN** READ **CAN.** [ASL/LSB]

'John really CAN read.'

(Lillo-Martin & Quadros 1998: 9)

A potential problem with this widely used categorization is that emphatic focus is vaguely defined, if at all. It is understood as a special emphasis on a specific focused element; however, contrastive focus is also emphasized by means of prosody and/or syntax. Wilbur (2012) highlights the importance of separating emphasis from focus, since not all elements that are emphasized are focused. Kimmelman (2013, 2014) shows that doubling can be linked also to topics in NGT and RSL and it is used to foreground information at the syntactic level and also at the discourse level.

Apart from the categorization just explained, focus may also be categorized in other different ways. A common category is based on the syntactic scope of focus (broad vs. narrow). Broad focus involves more than one focalized constituent while narrow focus involves only one focalized constituent.

Lastly, focus may be categorized regarding its pragmatic function. Wilbur & Patschke (1998) categorize focus in ASL looking at the following types, following Dik's (1989) typology: Completive focus, Restricting focus, Expanding focus, Selecting focus, Replacing focus and Parallel focus.

Completive focus is not considered contrastive. In this type of focus the focused element provides the exhaustive information (Lillo-Martin & Quadros 2008). ASL uses the sign THAT in a cleft structure to express it, as shown in example (19).

(19) A. I told Kay she should consider going to counseling.
B. You told who?
bl_back
re
A. KAY THAT, TOLD FINISH. [ASL]
'It's Kay that I told.'
(Wilbur & Patschke 1998: 292-293)

Restricting focus is marked with 'only'. In (20) the sign ONLY-ONE semantically restricts an alternative (JOHN) as the only one that is true in that context.

(20) Context: I was in a car accident last night. It was awful.
re bl_back
LUCKY WHAT **ONLY-ONE** JOHN HURT. [ASL]
'Thank god, though, only John was injured.'
(Wilbur & Patschke, 1998: 294)

Expanding focus involves the addition of a focused alternative. It is commonly expressed through additive and additive scalar focus particles like ‘also’ or ‘even’. In (21) the sign SAME marks the addition of a new unexpected element (JOE) to discourse.

(21) Context: I was in a car accident last night. It was awful.
bl_forward
JOE **SAME** SIT BACK WHIPLASH; TERRIBLE! [ASL]
‘Even Joe, who was sitting in the far back, got whiplash.'
(Wilbur & Patschke 1998: 294)

Selecting focus takes place in a context where an element is chosen out of a known and closed set. ASL marks this type of focus with a forward lean, as shown in (22).

(22) A: Kay and Kim got in a wreck Saturday. I think she wasn’t wearing her glasses or something.
B: WHO wasn’t wearing her glasses?
bl_forward
A: **KAY.** [ASL]
‘Kay, wasn’t.’
(Wilbur & Patschke 1998: 295)

Replacing focus involves a correction. It introduces an alternative that substitutes another alternative that is considered false in the context (X, not Y), as shown in (23) below.

bl_back bl_forward

(23) IX_1 NOT SAY **DEATH**, IX_1 SAY **BET.** [ASL]

'I didn't say 'death' I said 'bet'!'

(adapted from Wilbur & Patschke 1998: 296)

Finally, Parallel focus is defined as involving two items connected through 'and', 'or' and/or 'but'. The use of left and right body leans is common in this type of focus for various SLs, like ASL (24).

bl_left bl_right

re

(24) IX_2 LIKE WHAT, **CHOCOLATE VANILLA.** [ASL]

'Do you prefer chocolate or vanilla?'

(adapted from Wilbur & Patschke 1998: 296)

This categorization is more interesting for the purpose of this dissertation since it analyses pragmatic interpretations associated to each type. However, these types are not completely independent from each other, and they can be simplified into other categorizations based on some features that they share. First, parallelism is present in all of them even if it is implicit, since whenever there is contrast there are at least two alternatives that need to be semantically comparable to each other (Umbach 2004). Semantic parallelism is thus a necessary condition in any contrastive relation. Second, Parallel focus with 'but' (25) and Replacing focus (26) may both involve a correction, so they could be categorized into corrective focus instances expressed through different mechanisms.

re re+hthrb
hl ipsil. hl ipsil.

(25) JORDI BEER CL: DRINK NOT BUT SANGRIA YES. [LSC]
‘Jordi didn’t drink beer but sangria.’

(Zorzi 2018: 139)

hthr hthr
sp_left sp_right
bl+ht_left bl+ht_right

(26) MARY PIZZA EAT NOTHING OTHER BURGER. [LSC]
‘Mary didn’t eat a burger but a pizza.’

(Navarrete-González 2021: 14)

Third and last, Parallel focus with ‘and’ and Expanding focus are also closely related, in cases where ‘and’ is interchangeable with ‘also’ (see Kaplan, 1984, König, 1991). In many SLs, like ASL, ‘and’ is not expressed through a lexical sign, but through body leans from left to right (Davidson 2013, Zorzi 2018 among others). In parallel constructions in SLs it is common to find the additive focus particle ALSO as an optional marker that introduces the second element in the coordinate structure. Zorzi (2018) argues that in LSC coordinated structures ALSO functions as a conjunction and not as a focus particle when it is found between the two conjuncts. I will expand the discussion on additive focus particles in chapter 5.

2.2.2 Focus and contrast marking

Focus and contrast in SLs may be expressed through syntax and/or prosody, and sometimes through both in combination, while morphological strategies have not been attested (Sandler & Lillo-Martin 2006, Kimmelman & Pfau 2016). In addition, SLs present two important aspects that are relevant for the study of information structure notions and must be taken into account: the use of signing space and non-manual markers (NMMs) for grammatical purposes (Kimmelman & Pfau 2016). Space is commonly used for referential purposes (see Barberà 2015 for an overview on the uses of signing space in SLs), and non-manual markers, like facial expressions, head and body movements, and mouth gestures or vocalizations, are used to express different grammatical functions (Pfau & Quer 2010). These strategies are possible due to the visual-gestural modality of SLs and are not found (at least not grammaticalized)[7] in the oral-auditory modality of spoken languages.

2.2.2.1. Syntactic strategies

Different types of word order deviations and syntactic strategies have been attested in SLs in order to mark focus: focus in final position in the sentence, focus fronting, clefting and doubling.

[7] See Esteve-Gibert et al. (2017) where the scope of head co-speech gestures is found to be aligned to focused prosodic words.

2.2.2.1.1 Focus in final position

One common strategy in the SLs studied to date is placing the focused element in final position in the sentence. Question-answer pairs are a common strategy to mark focus in many SLs: ASL (Wilbur 1997), LSE (Morales-López et al. 2012), DGS (Herrmann 2013), NGT and RSL (Kimmelman 2014). In (27) the focused element is uttered as an answer to what appears to be a rhetorical question (Wilbur 1997). These constructions have been claimed to be equivalent to wh-clefts, but there is some controversy around this argument (see discussion in section 2.3).

(27) LEE(fs) PAINT WHAT? [CHAIR]$_F$. [ASL]
rhq hn
'What Lee painted was the chair.'

(Wilbur 1994: 650)

Base-generated constructions in which the prominent item appears in final position are also common in the expression of focus, as illustrated in example (28).

(28) MY SISTER, [DOCTOR]$_F$. [ASL]
re
'My sister is a doctor.'

(Wilbur 1997: 93)

Final position of focus has also been attested for different types of focus in NGT and RSL. In these languages both VO and OV orders

are allowed depending on different factors, including IS (Kimmelman 2014).

2.2.2.1.2 Focus fronting

The focused element may also be moved to sentence-initial position (Lillo-Martin 2005), as illustrated in example (29) below where BOOK STOKOE is moved to the beginning of the sentence and is articulated with a specific intonation.

(29) I-focus
[BOOK STOKOE]$_F$ I READ. [ASL]
'I read Stokoe's book.'
(Lillo-Martin 2008: 169)

In Sign Language of the Netherlands (NGT) and Russian Sign Language (RSL), fronting is associated to corrective focus, which can be marked by moving the focused constituent to the left of the sentence, as shown in examples (30) and (31).

(30) [ICE-CREAM]$_F$ WOMAN EAT. [NGT]
'[No,] the woman eats ice-cream.'
(Kimmelman 2014: 95)

(31) [K-O-N-F COVER]$_F$ BOY EAT. [RSL]
'[No,] the boy eats candy.'
(Kimmelman 2014: 95)

2.2.2.1.3 Clefting

Clefts in SLs have been described for ASL (Wilbur 1996), LIS (Branchini 2014), NGT (Kimmelman & Vink 2017), and LSF (Hauser 2018). Branchini (2014) describes two different types of cleft constructions in LIS, one equivalent to a cleft, and another one equivalent to a pseudocleft. The cleft is expressed by a focused sentence-initial constituent (the clefted constituent) followed by the sign PE, which is also a relative marker in LIS, and a sentence-final clause with a gap corresponding to the clefted constituent, like in example (32) below.

cleft

(32) CARLO PE IX_1 INVITE WANT. [LIS]

'It is Carlo that I want to invite.'

(Branchini, 2014: 273)

Branchini (2014) also describes a construction that is equivalent to a pseudocleft construction composed by a sentence-initial clause containing a wh-element at the right edge and specific NMMs (raised eyebrows), and a focused sentence-final constituent that provides the answer value for the previous wh-phrase (33). This type of construction is also accounted for ASL by Wilbur (1996).

re

(33) $PARIDE_i$ LOVE WHAT $SELF_i$ SIGN. [LIS]

'What Paride loves is to sign to himself.'

(Branchini 2014: 278)

2.2.2.1.4 Doubling

Doubling is commonly found to express emphasis (Wilbur 2012). In LSB, Quadros (1999) and Nunes & de Quadros (2008) propose that a focused clause-internal element is allowed to appear doubled at the right edge of the sentence, as illustrated in the LSB example (34). This strategy has also been described for other SLs, like ASL (Wilbur 2012), NGT and RSL (Kimmelman 2013, 2014).

(34) JOHN **NEVER** GO **NEVER.** [LSB]
'John *never* went to that place.'

(Quadros 1999; cited in Quadros 2003: 5)

Doubling may be applied to many different categories: modals (35), verbs (36), nouns (37), wh-particles (38), and pronouns (39), among others.

(35) **MUST** GO-WORK **MUST.** [ASL]
'I *must* go to work.'

(Wilbur 2012: 482)

(36) MARY **FINISH** GO SPAIN **FINISH.** [ASL/LSB]
'Mary *already* went to Spain.'

(Lillo-Martin & Quadros 1998: 9)

(37) **BABY** CRY **BABY**. [ASL/LSB]

'The *baby* is the one crying.'

(Lillo-Martin & Quadros 1998: 9)

(38) JOÃO BUY **WHAT** YESTERDAY **WHAT**. [ASL/LSB]

'*What* was it that John bought?'

(Lillo-Martin & Quadros 1998: 9)

(39) **IX$_1$** STILL **IX$_1$.** [NGT]
'*I* am still.'

(Kimmelman 2014: 140)

Kimmelman (2014) analyses doubling in NGT and RSL and states that "[…] the functions that have been related to doubling in spoken and sign languages are emphasis, contrastive or non-contrastive verification. In addition, doubling can be used to "save" constructions that would be otherwise ungrammatical because of the limitations on the permitted amount of inflection or incorporation." (Kimmelman 2014: 32).

2.2.2.2. Prosodic strategies

As for prosodic strategies, SLs express intonation primarily through NMMs; namely, facial expressions, and body and head movements

(Sandler 2012, Pfau & Quer 2010). Manual prosodic strategies such as the duration of the sign, the velocity of the sign's movement, or the length of the sign's movement trajectory, have also been attested as the way a sign is stressed in many SLs (Kimmelman & Pfau 2016, 2021).

2.2.2.2.1 Manual prosody

Manual prosody is a way to stress a focused constituent. A stressed sign is mostly characterized by being longer in duration, having a larger movement trajectory, and also by higher velocity of the movement (Kimmelman & Pfau 2016).

According to Kimmelman (2014), in NGT and RSL focus is marked by a longer duration of the focused sign, slower speed, a bigger amplitude in its articulation, and a higher location in space. Also, more repetitions of the movement of the sign are common in RSL when the movement is hand-internal or has a small path. This pattern is less frequent in NGT and the type of movement constraint does not seem to apply. This shows that despite the commonalities there are crosslinguistic differences among SLs. In both languages information focus is the most marked focus type in comparison to selective and corrective focus.

Schlenker et al. (2016) found that a greater sign amplitude was common in ASL and LSF to mark contrastive focus. They also found that in ASL exhaustive focus[8] was sometimes marked by a

[8] Exhaustive focus understood as "embedded focused elements that trigger exhaustive readings in the scope of other operators and that would require the

longer hold time or speed acceleration. In DGS CF items are also expressed with large signing amplitude and more tension in the articulation of the sign (Herrmann 2015).

One of the main issues around descriptions of manual prosody is the lack of proper tools to measure some of these features. All studies mentioned here have successfully used ELAN to measure the length and/or duration of the signs, as well as the number of repetitions of the movement of the sign. This is possible because ELAN tiers allow to synchronize a video and provide time alignment. However, aspects like intensity or amplitude of the sign cannot be properly measured using only ELAN, since this tool has no three-dimensional measure system for intensity or amplitude of signs. To date researchers have thus drawn conclusions basically from intuitions and self-perceptions, which is a great contribution for a start. In the development of this thesis I was fairly aware of this shortcoming; however, I did not have access to other tools that allowed me to measure more properly these aspects. Kimmelman et al. (2020) have recently used OpenPose software to track and analyse interactions in emotional and grammatical factors in eyebrow position in Kazakh-Russian Sign Language (KRSL). This tool seems to facilitate a more precise quantitative analysis, since it allows to extract key points from face, hands and pose directly from the video, that is from the signed discourse itself and not from the glosses as usual. This is a great technological advance for future research on focus manual markers and many other aspects of SLs.

---

insertion of exhaustivity operators –with clear truth-conditional consequences" (Schlenker et al. 2016: 366).

2.2.2.2.2 Non-manual prosody

Many studies have argued for the existence of suprasegmental phonological structure in SL. Constituents such as phonological word, phonological phrase and intonational phrase can be identified in SLs (Sandler 1999). Prosodic constituents in the visual modality of SL are expressed by NMMs, mainly by facial expressions, and are said to be analogous to intonation in spoken languages (Sandler 2011). As Dachkovsky & Sandler (2009) point out "the view that facial expression in sign language corresponds to intonation in spoken language has been suggested by a number of researchers (e.g., Nespor & Sandler 1999, Padden 1990, Reilly, McIntire, & Bellugi 1990a, 1990b, Sandler 1999a, 1999c, 2005, Wilbur 1991, 2000)" (Dachkovsky & Sandler 2009: 288).

For the expression of focus and contrast the most common NMMs found in the SLs studied to date are raised or furrowed eyebrows, mouthings or mouth gestures, and body and head movements.

Schlenker et al. (2016) show examples of ASL in which only prominence and non-manuals serve the purpose of realizing contrastive and exhaustive focus. In these cases, syntactic movement is not applicable, and prosody is used alone to express focus, as illustrated in (40) where the sign BILL, which is articulated as a trembling fingerspelled letter, receives focus marking by means of prosody alone. Schlenker et al. (2016) claim that since these names are semantically conjoined, syntactic movement is not expected and thus focus needs to be marked by prosody alone.

(40) Context: The speaker is trying to teach groups of students to work together.

TODAY IX-1 SEVERAL MEETING-rep FIRST MEETING ANN CHARLES EDITH DENIS, FINISH[8] ANN **BILL** EDITH DENIS. [ASL]
'Today I have several meetings. My first meeting is with Ann, Charles, Edith, and Denis, then with Ann, Bill, Edith, and Denis.'

(Schlenker et al. 2016: 7)

Same results were shown for LSF, which is historically related to ASL –both languages come from Old French Sign Language. CF and EF were marked with raised eyebrows in both languages while forward body leans were only found in ASL (see also Wilbur & Patschke 1998), and head nods with greater sign amplitude were used instead in LSF.

Body leans for the expression of contrast have been attested for many SLs. For NGT, van der Kooij et al. (2006) argue that leftward and rightward, and forward and backward body leans are present in corrective focus sentences, as well as left-right spatial contrast, as illustrated in example (41).

(41) left_bl right_bl
hs forward
NO, FRIEND IX, BROTHER IX, SELF IX. [NGT]
'No, not my friend, it's my brother [who is learning ASL]'

(adapted from van der Kooij et al. 2006: 1606)

Kimmelman (2014) corroborates that these markers appear in NGT, and also describes them for RSL. Moreover, he finds that they appear also in CT, and not only in CF, in both languages. In (42) body leans spread over the whole sentence marking contrast in both topics and both foci.

(42) left_bl right_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: 125)

Also, in NGT the marking for contrast may appear only in the second clause (marked with a body lean), while the first clause may remain unmarked (43).

(43) right_bl
DOG [ON GIRL BITE]$_F$. [CAT]$_T$ [BITE ON BOY]$_F$.
'The dog bites a girl. The cat bites a boy.'
(adapted from Kimmelman 2014: 125)

Calderone (2020) investigates contrastive topics in LIS and argues that left and right body leans seem to signal contrastive parallel functions and are articulated in combination with other markers that are common to all types of topics in LIS: raised eyebrows and squinted eyes.

In ISL squinted eyes function as a low accessibility marker (Dachkovsky 2008, Dachkovsky and Sandler 2009). In the same line Herrmann (2015) claims that in DGS squint is used in declaratives and interrogatives to refer to shared knowledge, namely, to recover given information. Moreover, she identifies head nods, wide eyes and eyebrow raise in the expression of CF along with the manual features mentioned above (tense and large signing).

2.2.2.3. Use of space and dominance reversal

Some SLs use contrastive spatial locations for the expression of contrasted referents (Kimmelman 2014). Crasborn & van der Kooij (2013) found a specific use of space (in addition to manual and non-manual marking) for CF in NGT. The two contrasted referents can be localized on the opposite sides of signing space (left-right), as illustrated in example (44).

	left bl		right bl	
	hs	forward bl		
(44)	NO, FRIEND INDEX,	BROTHER INDEX,	SELF INDEX.	

'No, not my friend, it's my brother [who is learning ASL.]'

(adapted from van der Kooij et al. 2006: 1606)

Barberà (2015) found the use of opposite sides of signing space in the expression of CTs in LSC. In example (45) below the CT JOAN is articulated with a body lean towards the ipsilateral side, and the pointing sign IX_3 is articulated towards the opposite direction, the

contralateral side of space.

ip cl

(45) YESTERDAY JOAN $_3$TELL$_1$ PILAR IX$_3$ SICK.

'Yesterday Joan told me that Pilar was sick.'

(Barberà 2015: 68)

When signs are body-anchored they cannot be placed in signing space so the signer can localize them through body leans towards each side. Body leans are thus directed towards the location in signing space where the signs would be placed.

Furthermore, contrast can be expressed through *dominance reversal*. This phenomenon takes place when the non-dominant hand of the signer becomes active, and it implies that referents localized contrastively (to the right and to the left of the signer) can be signed with two different hands. Kimmelman (2014) identifies this strategy in RLS (46) and NGT (47).

left bl right bl

(46) h1: DOG BITE [RSL]

h2: CAT BITE.

'The dog bites (the boy) and the cat bites (the girl).'

right bl left bl

(47) h1: CAT BITE [NGT]

h2: DOG BITE.

'The cat bites (the girl) and the dog bites (the boy).'

(adapted from Kimmelman 2014: 126)

In sum, different SLs have been argued to use different syntactic and prosodic strategies in order to express focus constructions. The most common strategies found in SLs are summarized in table 2.1 below.

		Information focus	Contrastive focus	Emphatic focus
ASL	**Syntax**	Wh-clefts Sentence initial position Sentence final position		Doubling
	Prosody	-	Raised eyebrows Forward body leans	-
LSF	**Syntax**	-	-	-
	Prosody	-	Longer hold times Speed accelerations Greater sign amplitude Raised eyebrows Head nods	-
LSB	**Syntax**	-	-	Doubling
	Prosody	-	-	-
NGT	**Syntax**	-	Left-right spatial contrast	-
	Prosody	-	Leftward and rightward body leans Head forward	-
LSE	**Syntax**	Wh-clefts	-	-
	Prosody	-	-	-

Table 2.1. Summary of some syntactic and prosodic strategies used in different SLs for expressing focus

The type of data used in the analysis of focus and contrast markers and the type of description and analysis may also influence results. Table 2.2 shows how different SLs have collected and analysed their data on focus and contrast and the results obtained regarding markers. Body leans appear as a common strategy across all SLs represented in the table for marking contrastive relations. Head movements also appear in most of them as a way to express CF, mostly related with affirmation.

SL	Type of data	Type of description and/or analysis	CF markers
ASL	Elicited	Syntactic, pragmatic	Wh-clefts, eyebrow raise, forward leans
NGT	Experimental and corpus	Prosodic, syntactic, pragmatic	Left-right body leans, opposite sides of space, head forward
RSL	Experimental and corpus	Prosodic, syntactic	Left-right body leans, opposite sides of space, head forward
LSF	Elicited	Semantic	Eyebrow raise, head nods, Forward/backward leans

Table 2.2. Summary of the main findings on the marking of contrast for SLs

2.2.3 The interpretation of focus and contrast

Beyond the description of IS markers some researchers have provided more fine-grained analysis of the interpretation of focus and contrast. It is important to notice that the marking of contrast described above is spreading over both topics and foci in many examples, like (47) above. Kimmelman (2014) points out that body leans are used to mark contrast and not focus, since they are found co-occurring with both IS notions. This is a common pattern in some of the SLs studied until now. However, Kimmelman does not consider this evidence sufficient to argue for the notion of contrast as an independent category, since these markers in NGT and RSL are only used in a binary way, when only two alternatives are contrasted, and when they are explicitly mentioned. He argues that these markers may arise due to modality specificities: the use of space in SLs.

Crasborn & van der Kooij (2013) also found a specific use of space, as well as manual and non-manual marking for CF in NGT. They argue though that the prosodic distinction between IF and CF seems to be gradient, based on the hypothesis that in larger stretches of discourse, body leans can also be used for IF. However, they acknowledge that the possibility that the co-occurrence of several cues may be a distinguishing factor between IF and CF is beyond the scope of their research.

In ASL and NGT, besides expressing contrast, forward leans are associated with inclusion and affirmation, and backward leans with

exclusion and negation at the lexical level and beyond (Figure 2.3) (Wilbur & Patschke 1998; Van der Kooij et al. 2006).

The lean in ASL is lexically specified for verbs like INVOLVE or ENCOURAGE (lean forward) and HESITATE or RESIST (lean back). It also cooccurs with adverbs like ONLY and ALWAYS, the former coarticulated with a lean back expressing restriction and the latter coarticulated with a lean forward expressing universality. But it is not clear if they are lexicalized in those adverbs or similar pairs.

not Y	*only*		*even*	*X*
Negation	Exclusive	Neutral	Inclusive	Affirmation
----------*lean back*----------			----------*lean forward*----------	

Figure 2.3. Scale of inclusiveness and exclusiveness in ASL (Wilbur & Patschke 1998: 299)

In sum, there seems to be evidence that SLs mark contrast independently from other IS notions. SLs can be argued to provide evidence that we are actually dealing with a different IS notion expressed by specific grammatical means, which overlaps with the topic and the focus of the sentence. The traditional approach adopted until now in most SL research has successfully served the purpose of providing the first descriptions of the expression of IS notions in SLs. However, most of them have consistently assumed traditional definitions for IS notions without questioning more theoretical issues like the ones posed in sections 2.1 and 2.2. Apart from these works, there is barely research investigation on the interpretation of contrast and focus in SLs, Therefore, a more

thorough analysis of focus and contrast pragmatic interpretations is needed for SLs. Chapter 4 intends to contribute with new knowledge on this matter.

2.3 Focus particles in SLs

Most SLs remain without an exhaustive description regarding focus particles (FP). The syntactic distribution of FPs has been studied exhaustively for DGS, NGT, and IrishSL (Herrmann 2013, Kimmelman 2014), and also for ASL (Wilbur, 1994; Wilbur & Patschke, 1998).

Regarding restrictive FPs, ASL uses three different signs to express restrictive focus meaning: ONLY, ONLY-ONE, JUST and THAT'S-ALL, which are accompanied by a backwards body lean (Wilbur & Patschke, 1998). THAT'S-ALL is considered an adverb that is always located in sentence final position. By contrast FPs ONLY and JUST are always placed before the focused element and the FP ONLY-ONE may appear before or after the focused element.

In DGS signs that express restrictive meaning are NUR_1, NUR_2 and ALLEIN (Herrmann 2013). NUR_2 is the most frequent one and it appears in contrastive sentences as an adjunct of the focused element, as illustrated in example (48). NUR_1 is less frequent, and it appears in sentence final position, as shown in example (49). The sign ALLEIN, which means 'alone', may also be used as a restrictive FP, as exemplified in (50).

(48) Are they both drinking wine?

hs forward_ht

BEIDE NUR$_2$ FRAU IX$_3$. [DGS]

both only woman ix$_3$

'Not both, only the woman.'

(Herrmann 2013: 245)

hu

(49) TIM BUCH KAUF NUR$_1$. [DGS]

Tim book buy only

'Tim only bought a book.'

(Herrmann 2013: 249)

(50) NEIN ALLEIN KIND BFF. [DGS]

no alone child neg

'No, only the child.'

(Herrmann 2013: 267)

In DGS additive FP are expressed with the signs AUCH and DAZU ('also'). AUCH is the most frequent one and it can be found before or after the focused constituent. Also, these particles can both appear combined in the same sentence (Herrmann 2013: 256).

Regarding additive scalar FPs DGS, Irish SL, and NGT do not use any sign to express counterexpectation meaning. Instead, this meaning is expressed i) through the sign in combination with specific NMMs (raised eyebrows, open eyes, head tilt forward and/or head nod) and ii) through the sign PF in combination with the

same NMMs just mentioned. According to Herrmann in SLs NMMs are adding the (pragmatic) scalar meaning and no specific manual sign is used for the expression of the additive scalar meaning.

In ASL additive scalar FPs are expressed with the additive FP SAME / ALSO that mean ‘also’ or ‘identic’ and the additive meaning alone (without scalarity) is only expressed when these signs are articulated without a NMM: a forward body lean (Wilbur & Patschke 1998). Forward body leans are considered thus sufficient for the expression of scalar meaning without the need of articulating the manual sign (51).

forward_bl

(51) C’MON! REALLY! FOUR-YEAR-OLD CAN MORE FAST IX$_{2PL}$.

‘C’mon! Really! Even a four-year-old could do faster than you.’

(Wilbur & Patschke, 1998: 287)

For LSC Zorzi (2018) describes the signs ALSO and PLUS in coordinated sentences in LSC. This work argues that PLUS can be expressed with two different handshapes: Q or F, and it might be expressed with the mouthing [mas], which means ‘plus’ in Spanish. According to Zorzi these signs are used to express addition to a list of referents. Zorzi further argues that the signs ALSO and PLUS-Q can only appear between two conjuncts, as illustrated in (52) and (53).

hl ip+sp cl hl ip

hn hn hl ip

(52) MARC CAKE BAKE // ALSO MARINA PIZZA EAT // ALSO IX-2

hl ip hn
SANDWICH PREPARE.
'Marc baked a cake, Marina ate a pizza and you prepared a sandwich.'

(adapted from Zorzi 2018: 118)

hl cl bl+hl ip
re [mas] re
(53) MARINA PIZZA BAKE PLUS-Q MARC SANDWICH PREPARE.

'Marina baked a pizza and Marc prepared a sandwich.'

(adapted from Zorzi 2018: 119)

Both ALSO and PLUS may be used in the same sentence when more than two conjuncts are produced (54). PLUS-Q can only be found introducing the last element of the coordination, while ALSO may be use introducing the previous conjuncts. Moreover, when PLUS-Q is used in combination with ALSO, it has an emphatic function.

bs cl hl+bs ip hl ip
sp cl sp ip re
(54) HOME MARINA GO ALSO TICKET CINEMA BUY PLUS-Q SON SCHOOL
hl ip
sp cl
BRING.
'Marina went home and she bought the ticket for the cinema and she brought her son to school.'

(adapted from Zorzi 2018: 120)

Based on syntactic arguments Zorzi (2018) claims that ALSO may be used either as a coordinating conjunction, when it is found between the conjuncts, or as an additive FP when it is found in final position in the sentence. In chapter 5 I will argue that the FP ALSO is also an additive FP when it is placed between the conjuncts.

For LSC Mayol & Barberà (2018) describe some non-manual markers used in the expression of additive scalar FPs. In example (55) the additive FP ALSO is articulated with the NMMs head nod, raised eyebrows and wide eyes triggering the scalar meaning.

(55) BOY ANIMAL DEER CL(8) 'animal running'/CL(2) 'two-legged
hn,re,we
entity on top' FAST. ALSO DOG CL(8) 'animal running' FAST.
'The deer was running very fast with the boy lying on his head. Even the dog was running very fast.'

(Mayol & Barberà 2018: 443)

In chapter 5 I will show that there are also some lexical signs that can function as additive scalar FPs.

2.4 Clefts and exhaustivity in SLs

Clefts in SLs have not been widely studied. Branchini (2014) is the most comprehensive study on this topic. This work analyses

different types of clefts in LIS. In this SL the cleft structure is composed by an initial constituent, followed by the sign PE (a relative marker which is accompanied by the mouthing [p]) and a final clause that lacks a constituent (corresponding to the initial constituent), as shown in (56). The initial constituent is coreferential with the sign PE. Both the initial constituent and the sign PE are marked by the NMM raised eyebrows.

(56) re
HOUSE PE$_i$ ANNA$_k$ IX$_{3k}$ BUY WANT. [LIS]
'It is a house that Anna wants to buy.'
(Branchini 2014: 268)

Branchini argues that these structures presuppose exhaustivity and a unique identification of the focused constituent, unlike structures where the focused constituent is moved to the left periphery without the use of the sign PE. The sign acts as a determiner identifying the constituent.

Moreover, in LIS there is a structure that is equivalent to a pseudocleft, which is illustrated in example (57) below.

(57) re
PARIDE$_i$ LOVE WHAT SELF$_i$ SIGN. [LIS]
'What Paride loves is signing to himself.'
(Branchini 2014: 278)

This structure has also been documented for other SLs like ASL, but its analysis is controversial. Some authors do not consider this

as a pseudocleft structure, but as a pair of a question and an answer closer to rhetorical questions (see Wilbur 1996, Caponigro & Davidson 2011). Wilbur (1996) considers them as being syntactically and prosodically a single sentence.[9] She claims that these constructions are pseudoclefts which serve the purpose of focusing a constituent.

Recently, Kimmelman & Vink (2017) for NGT and Hauser (2018) for LSF claim that these structures are rhetorical questions in origin that are undergoing a process of grammaticalization and becoming structures with other more complex syntactic functions. This grammaticalization process would explain why the same syntactic structure can be found in different contexts with different grammatical functions.

Wh-clefting has been also attested as being a focus marker in other SLs such as Spanish Sign Language (LSE) (Morales-López et al. 2012). However, the study of these structures in SLs is still scarce in comparison to the literature of spoken languages, especially in terms of semantic and pragmatic analyses. Chapter 6 intends to offer a first pragmatic analysis of these structures in LSC.

2.5 Proposal

SLs seem to contribute to the view of contrast as an independent notion, since they share some common features for the expression

[9] Traditional analyses treat wh-clefting as a rethorical question followed by a separate answer (Baker-Shenk 1983, as cited in Wilbur 1996).

of contrast: most of the SLs studied to date show specific marking that only appears when contrast is present, and it is clearly distinguished from the marking of other IS notions, such as topic and focus. In LSC contrast also shows clear independent prosodic marking that can be distinguished from the marking of focus and/or topic and correlates with different interpretations associated to different types of contrast. However, it does not show a specific syntactic position for CF associated to exhaustivity. For this reason, I adopt a semantic-pragmatic perspective that allows us to better explain the expression of different types of contrast in LSC and the correlation between prosodic markers and pragmatic interpretations. This approach also allows to broaden the paradigm of contrast markers in LSC. Based on Kimmelman's (2014) classification of focus types, I analyse semantic-pragmatic interpretations of three different types of contrast (parallel contrast, selective contrast and corrective contrast) and their grammatical reflexes in order to contribute to a better understanding of the nature of this notion in both SLs and spoken languages and I claim that the notion of contrast can be argued to be an independent category in IS, based on the analysis of LSC data. Three types of contrast (parallel contrast, selective contrast and corrective contrast) are expressed with the same combination of markers: body leans and/or head tilts from left to right in combination with the use of the opposite sides of signing space. Moreover, additional NMMs in selective contrast and corrective contrast (and also in some examples of parallel contrast with 'even'), like additional head movements, trigger additional pragmatic interpretations. All contrast types involve

semantic parallelism between the alternatives that are being contrasted and this semantic parallelism is expressed by a basic combination of markers that is repeated in each of the contrast types.

Regarding FPs I propose that the signs ALSO, PLUS-F, PLUS-Q and PLUS-1 are used to express additive FPs; the signs UNTIL, INCLUDED, and ON-TOP-OF are used to express additive scalar FPs, and that specific prosodic NMMs (raised eyebrows, chin up, backward head tilt, and a particular mouth gesture) accompany these lexical signs in order to express the scalar meaning. I also claim that additive focus particles in LSC can be used as scalar if they are accompanied by the specific NMMs presented before, as already stated for other SLs (cf. Herrmann 2013). Contrary to Herrmann (2013), I state that there are specific lexical signs for the expression of additive scalar FPs and I show that there is a degree of scalarity that does not only depend on the prosodic NMMs. As for restrictive FPs I propose that the signs THAT'S-IT, UNIQUE and ALONE are used in the expression of exclusion of an alternative, being the sign THAT'S-IT the most frequent one in LSC discourse. Also, FPs in LSC trigger conventional implicatures and presuppositions as argued for other languages.

In relation to clefts I offer a first insight and I propose that, contrary to what has been postulated for LIS (Branchini 2014), in LSC it is not possible to determine in most of the cases if we are dealing with a structure equivalent to what has been traditionally defined as a cleft or with a fronted focus emphasized by an intensifier.

In the analysis of exhaustivity I propose that it is calculated via a conversational implicature and it is not an inherent feature of the structure.

3 FOCUS

3.1 Introduction

In this chapter I describe focus realization in LSC assuming that focus evokes alternatives (Rooth 1992, Krifka 2007) and also assuming that focus always presents new information in relation to the previous context (Gundel & Fretheim 2004). As shown in section 2.1.3, I separate the notions of focus and contrast as independent Information Structure (IS) categories since LSC provides evidence for this distinction.

This chapter is partially based on the research done in Navarrete-González (2016, 2019). Section 3.2 gives an overview of the different ways focus may be realized in a language. Section 3.3. introduces a short discussion on theories of focus interpretation. Section 3.4 presents a description of focus marking strategies in LSC. Section 3.5 elaborates on the interpretation of focus in LSC. Lastly, section 3.6 summarizes the results presented in the chapter.

3.2 Focus realization

IS notions in spoken languages can be linked to syntax as well as to intonation, or even to morphology. In a sentence, the informational focus is almost universally marked by intonation, so that the

focused portion of information must be placed in the part of the sentence where the pitch contour is most prominent (cf. Sgall et al. 1984, Lambrecht 1987, inter alia, as cited in Vallduví 1990).

Some languages like English are known as [+plastic], since the elements that have prominence in a sentence may be marked by intonation and stress patterns. English tends to shift the position of the nuclear stress for the expression of focus (Vallduví & Engdahl 1996). It allows having the same word order to express different information packaging (Vallduví 1990), as illustrated in (1), where the part of the sentence that presents new information is highlighted with capital letters.

(1) a. The boss hates BROCCOLI.
b. The boss HATES broccoli.

(Vallduví 1990: 6)

Other languages like Catalan or Spanish are known as [-plastic] because they are more rigid in allowing changes in the stress patterns to convey information packaging. Catalan, for instance, tends to use variations in word order for placing the focused element in the position where the pitch accent is most prominent, as exemplified in (2b), where there is dislocation of the focus to final position in the sentence. Similar findings have been reported for Spanish, as illustrated in example (3), where the subject focus is moved to final position in the sentence.

(2) a. L'amo odia el *bròquil*.
b. L'amo l'*odia*, el bròquil.

(Vallduví 1990: 6)

(3) Q: ¿Quién compró los discos?
who bought the records
'Who bought the records?'
A: Los compró *una muchacha*.

(Gutiérrez-Bravo 2006: 110-111)

The *ground* is the non-focused information, which indicates the hearer where and how the focus information should be entered into the knowledge store. Vallduví (1990) argues that there are two different types of ground: the *link* (L), which indicates where the information should be entered, and the *tail* (T), which, if present, indicates which information should be substituted by the focus (F). The natural order of information should be link-focus-tail, as illustrated in example (4) from English.

(4) And what about the president? How does *he* feel about chocolate?
[The president]$_{L}$ [*hates*]$_{F}$ [chocolate]$_{T}$.

(Vallduví & Engdahl 1996: 470)

For Catalan, Vallduví & Engdahl (1996) argue that only overt phrases within the core clause correspond to the focus, and the ground appears in a detachment slot external to the core clause. They claim that the elements of the sentence that are not focal are

removed by a syntactic operation instead of just changing the stress patterns, as illustrated in (5) below.

(5) Què en fareu, del ganivet$_1$?
'What will you do with the knife?'
[El$_1$ ficarem al *calaix*]$_F$.
OBJ put in-the drawer
'We'll put it in the drawer.'

(Vallduví & Engdahl 1996: 478)

Vallduví & Engdahl (1996) also analysed West Germanic (Dutch and German), and Hungarian and Turkish. They found that Dutch and German behave much like English, since they allow a shift in the intonational structure. Hungarian and Turkish, on the other hand, make use of word order deviations placing focused arguments in a preverbal position, and ground elements in postverbal or left-hand position preceding the focus.

Moreover, many spoken languages can express focus constructions through morphological strategies. For instance, Navajo uses the morpheme *ga'* to mark the focused element in a sentence, as exemplified in (6).

(6) Jàan chidïïsh yiyíílcho.
John car.Q 3s-PAST-wreck
'Did John wreck the *car*?'
NDA, (Jáan) [chidítsoh ga']$_F$ (yiyílcho).
no John truck F 3s-past-wreck

'No, John wrecked the *truck*.'

(Vallduví & Engdahl 1996: 493)

In some languages, like Ngamo, the *ground* may be marked (Grubic, 2015) while the focus remains unmarked. In (7) the morpheme *=i* is marking a given background while the focus 'Jajei' has no specific marking.

(7) Q: Shuwa esha=*i* lo?
Shuwa call.PFV=BM who
'Who did Shuwa call?'
A: Shuwa esha=*i* Jajei
Shuwa call.PFV=BM Jajei
'Shuwa called Jajei.'

(Grubic 2015: 128)

As for SLs, only syntactic and phonological strategies have been attested (Kimmelman & Pfau 2016). Some syntactic strategies found in SLs are placing the focused element towards the end of the sentence (8), fronting (9), clefting (10) and doubling (11).

rhq hn
(8) LEE(fs) PAINT WHAT? [CHAIR]$_F$. [ASL]
'What Lee painted was the chair.'

(Wilbur 1994: 650)

(9) [ICE-CREAM]$_F$ WOMAN EAT. [NGT]
'[No,] the woman eats ice-cream.'
(Kimmelman 2014: 95)

cleft
(10) [CARLO PE]$_F$ IX$_1$ INVITE WANT. [LIS]
'It is Carlo that I want to invite.'
(Branchini 2014: 273)

(11) [**MUST**]$_F$ GO-WORK **[MUST]**$_F$. [ASL]
'I must go to work.'
(Wilbur 2012: 482)

Regarding prosodic strategies manual and non-manual markers have been attested to mark focus in different SLs. The most systematic manual markers attested until now in a focused sign are longer duration of the sign, larger movement trajectory, and higher velocity of the movement, as compared to its non-focused counterpart (Pfau & Kimmelman 2016).

The most prominent non-manual markers found in the expression of focus in SLs are eyebrow raise, mouthings or mouth gestures, and body and head movements, body and head movements being mostly found in CF instances (cf. Crasborn & van der Kooij 2013, Kimmelman 2014, Herrmann 2015, Schlenker et al. 2016, Van der Kooij et al. 2006, Wilbur & Patschke 1998). These markers are not systematically present in all types of focus constituents. (12) below is an example of corrective focus in NGT that is marked with

body leans. In this example there is also a headshake expressing negation but no eyebrow raise or mouthing are found (see section 2.2 above for a more detailed explanation of focus marking strategies in SLs).

(12) left_bl right_bl
hs forward
NO, FRIEND IX, BROTHER IX, SELF IX. [NGT]
'No, not my friend, it's my brother [who is learning ASL]'

(adapted from van der Kooij et al. 2006: 1606)

The focus markers presented above are not systematically present in SLs whenever there is a focus constituent. In DGS, for instance, focus constituents may be deaccented due to phonological constraints, like inherent lexical NMMs or the phonology of the surrounded signed material that can overlap with typical focus markers (Herrmann 2015).

In sum, spoken languages make use of a wide variety of syntactic, prosodic, and morphological strategies for focus marking purposes, and according to the research done so far SLs only exhibit syntactic and prosodic strategies for the same purpose; even though the use of space is considered morphophonological in nature, it is not used for marking focus but contrast.

3.3 Focus interpretation

How focus should be interpreted is not a trivial question either. One of the most extended views is that focus triggers alternatives. A brief introduction of theories of focus is presented in section 2.1.2. This section briefly focuses on the main arguments and counterarguments of three different but strongly related theories: Alternative Semantics, Structured Meaning Accounts and the Question Under Discussion (QUD) framework. The aim is to see how these theories helped shape the analysis of focus and contrast presented in this thesis.

3.3.1 Alternative semantics

The Alternative Semantics (AS) theory of focus is built from the study of prosodic focus in English. In this theory focus is understood as a trigger of alternatives. Rooth (1992) establishes that there is a second semantic value of prosodic focus that is its semantic reflex, next to the regular semantic value.

(13) Who cut Bill down to size?
MARY cut Bill down to size.

(Rooth 2016: 2)

The focus semantic value of a focused phrase of semantic type τ is the set of possible denotations of type τ.

According to this theory topic and focus may combine giving raise to contrastive topics (CTs) (see also Büring 2003). CTs are defined as sets of sets of propositions. The topic semantic value of CT is obtained by making substitutions in the CT position, yielding the set of Hamblin questions of the form ‘*z* came with that entity’, where *z* is an individual.

(14) (who came with whom?)
What about Anna? Who did she come with?
Anna_{CT} came with Manny_{F}.

(Rooth 2016: 36)

Experimental works on prosody have shown that in English CTs and focus have a different pitch contour (Pierrehumbert, 1980, Liberman and Pierrehumbert, 1984). CTs are described as marked with L+H* and foci as marked with H*.

This framework nicely accounts for a semantic analysis of focus; however, other researchers have pointed out some difficulties in the analysis of multiple foci and association with operators (see Tonhauser et al. 2017 for a discussion on this topic). Therefore, other theories have arisen that try to account for these phenomena. Beaver and Clark (2008) developed a version of AS based on Roberts (1996) that tries to account for some of the problems mentioned above.

3.3.2 Structured meaning accounts (SMA)

This theory was first developed by Jackendoff (1972) and followed by Chafe (1976) and Stechov (1990, 1991). More recently, Krifka (2007) developed an interesting account for the interpretation of focus. Krifka defines SMA in the following way: "A structured meaning is a pair consisting of a background part and a focus part. The background is of a type that can be applied to the focus. If this application is carried out, we arrive at the ordinary semantic representation" (Krifka 1992b: 18). Krifka's work states that "focus indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions" (Krifka 2007: 6). According to this author focus can be either open or closed depending on the nature of the sets of alternatives it is derived from (open sets or closed/restricted sets). Moreover, two different uses of focus may be distinguished: i) semantic use of focus and ii) pragmatic use of focus.

i) **Semantic use of focus** affects the truth-conditional aspects of the discourse. It is usually connected to focus particles like for instance *only*, which provide a semantic meaning that is difficult to cancel via pragmatic mechanisms. In chapter 5 I analyse focus particles *only*, *also*, and *even* in LSC following this claim, since focus particles are crucial to disentangle the means for focus marking in sign languages (Herrmann 2015).

ii) **Pragmatic use of focus** "regulates how the Common Ground (CG)[10] of the discourse is updated by imposing pragmatic requirements on the discourse to fulfil the communicative needs of the discourse participants" (Krifka 2007). Pragmatic focus is interpreted to be exhaustive but, as will be shown in chapter 6, exhaustivity in LSC can be cancelled in most cleft constructions.

The main problem that has been pointed out in this account is that SMA does not offer a transparent relation between focus and alternatives. Later theories like the QUD theory have tried to account for this issue.

3.3.3 Question under discussion (QUD) models: an overview

The Question under Discussion (QUD) theory builds from AS theory but it relates the sets of alternatives to a broader strategy, to the literature of presuppositions (Roberts 1996, 2012, Vallduví 2016, Beaver et al. 2017, Riester et al. 2018, among others). The idea behind the QUD is that each sentence in discourse addresses or answers a question, which is often implicit. Therefore, interlocutors organize information in discourse around questions under discussion that depend on the context and that are added to the

[10] CG is defined by Stalnaker (2002) as the "mutually recognized shared information in a situation in which an act of trying to communicate takes place" (Stalnaker 2002: 704).

common ground (Roberts 1996). Questions under discussion can also be stacked (*QUD stack*) creating subquestions under discussion that depend on a main QUD. These questions need to be accepted by the interlocutors, and answers (assertions) need to be relevant, that is they need to be at least partial answers to the questions (QUD), as stated below.

> A move *m* is Relevant to the question under discussion q, i.e., to last (QUD(*m*)), *iff m* either introduces a partial answer to *q* (*m* is an assertion) or is part of a strategy to answer *q* (m is a question).
>
> (Roberts 1996: 6:21)

Following the QUD theory, Beaver et al. (2017) offers a unified perspective on presupposition and IS, since questions provide constraints that operate at both propositional and subpropositional levels. In this work it is claimed that QUD models are a natural extension of a standard view of questions as denoting sets of alternatives, as claimed by Beaver & Clark (2008) in the Focus Principle statement below.

> Focus Principle: Some part of a declarative sentence utterance should evoke a set of alternatives containing all the Rooth-Hamblin alternatives of the current question.
>
> (Beaver & Clark 2008: 37)

In sum, the interpretation of focus will not always depend on how it is expressed (its sentence form or its prosody) but also on the pragmatic context where it is uttered, beyond the sentence it

belongs to. Context is thus crucial to trigger the different alternatives that are relevant for the interpretation of focus.

3.4 Focus marking in LSC

In this section, a description of the main strategies used in LSC for expressing focus is presented based on Navarrete-González (2016). For LSC, it has been claimed that syntax and prosody are used in topicalization and information structure purposes in general (Quer 2016). In fact, word order deviations and prosody are key in the expression of focus in LSC. The following sections present a description of word order deviations and prosodic (both manual and non-manual) strategies found for focus marking purposes.

3.4.1 Syntactic markings

Word order deviations and other strategies, like clefts, fronting or doubling, in which syntactic movements take place are attested for the expression of focus in LSC.

3.4.1.1. Focus in final position

One of the most common word order deviations attested in the data collected is the placement of the focused element in clause-final position. This syntactic movement to the right of the clause occurs mainly in narrow focus when the scope of the focus affects only a single constituent. The data analysed for LSC show many cases of

information subject-focus and object-focus placed in final position, as illustrated in (15) and (16), respectively. The focused constituent is moved to the end of the clause where the pitch accent is most prominent.

(15) 'Who gave you the shirt?'
CLOTHES SHIRT $_{3}$GIVE$_{1}$ [FATHER]$_{F}$.
'*Father* gave me the shirt.'

(16) What do you eat?
EAT [BREAD]$_{F}$.
'(I) eat *bread*.'

Verb-focus elements may also be placed at the end of the sentence, as shown in example (17). This is the default position for most verbs in LSC, so in these cases focus is not marked since there is no word order deviation or specific prosody.

(17) What is the neighbour doing with the car?

IX$_{3}$ [PUSH]$_{F}$
'He is pushing it.'

Broad focus instances like VP-focus and sentence-focus may also not show any word order deviation maintaining the basic word order SOV, as illustrated in examples (18) and (19).

(18) Context: You are talking to your partner after a long day of work. He/she usually goes to the gym every afternoon, so you assume that he/she went today as well, and you say: You went to the gym, right?

left sp right sp
left bl right bl
NO GYM NOT-GO IX$_1$ FRIEND MEET.
'No, I didn't go to the gym, I met a friend.'

(19) A woman is pulling a car, right?

hs
fe
[NO(NMM), MAN STRONG COKE DRINK-WITH-A-STRAW]$_F$.
'No, a man is drinking a coke with a straw.'

3.4.1.2. Fronting

Fronting is also a common strategy in the expression of focus in LSC. It is a more marked strategy accompanied by specific prosody and it is mainly found in contrastive focus instances. In (20) below PIZZA is fronted and articulated with raised eyebrows and forward body lean.

Context: Your friend is not sure if it was a pizza or a burger that Mary ate. You clarify it.

forward bl
re
(20) [PIZZA]$_F$ MARY EAT.

'*Pizza*, Mary ate.' 

3.4.1.3. Clefting

As has been attested for LIS, LSC has a construction compatible with a cleft structure (21). This structure involves the relative marker SAME, described by Mosella (2012).

hn

re

(21) PIZZA IX SAME MARY EAT.
'It was a *pizza* that Mary ate.' 

LSC also uses a structure that has been claimed to be analogous to a pseudocleft (Wilbur 1996). Example (22) is composed by a question followed by an answer. This structure has been attested for other SLs as well (Wilbur 1996, Branchini 2014, Kimmelman 2014, Bross 2020, among others).

(22) WORLD HATE MORE-1 WHAT? LIE.
'What I hate the most in this world is a lie.' 

This structure used as a pseudocleft appears to be less common in LSC than in other SLs like LIS, for instance (see Branchini 2014). Informants reject this construction in some contexts where a pseudocleft in other languages like English, Catalan or Spanish would be perfectly acceptable. Question-answer pairs are mostly

accepted in generic sentences like (22) above, which were provided without a specific context.

Chapter 6 addresses the analysis of clefts and exhaustivity in more detail and discusses the controversy around question-answer pairs in SLs and their compatibility with a pseudocleft structure in some contexts.

3.4.1.4. Doubling

Doubling is a strategy that consists in repeating a focused element in a single sentence. It is commonly described in the existing literature as being a common strategy for marking emphatic focus in SLs (Petronio 1993). Doubling has been attested for many SLs, such as ASL (Wilbur 2012), LSB (Petronio 1993), RSL and NGT (Kimmelman 2014). LSC is no exception; in example (23), the sign ESCAPE is doubled: it is found in its original position, and also at the end of the sentence[11].

(23) FROG [**ESCAPE** WANT **ESCAPE**]$_{F}$.
'Frog *wants to escape*.'

[11] In this dissertation I am assuming that basic word order in LSC is SOV; with the exception of motion verbs like GO or MOVE, which can be placed in second position before the object (SVO) in unmarked sentences (Quer et al. 2005). In other works this flexibility in the position of the verb not only affects motion verbs but any other type of verbs (see Jarque et al. 2017).

Doubling in LSC may occur with verbs (24), nouns (25), wh-elements (26), pronouns (27), modals (28), temporal signs (29), negative signs (30), and quantifiers (31).

(24) [**GO** TOGETHER CINEMA **GO**]$_{F}$.
'(We) *went to the cinema together*.'

(25) DRINK [**WATER** ONE RESPONSIBLE **WATER**]$_{F}$.
'A *responsible person* drinks *water*.'

(26) [OBSESSION **WHERE** FROG **WHERE**]$_{F}$.
'(He) was *obsessed about where the frog was*.'
(CORP: 2, DT, 00:01:23:000)

(27) [**IX$_3$** ORDER WINE **IX$_3$**]$_{F}$.
'*He* has ordered wine.'

(28) CHILD VEGETABLES [**MUST** EAT **MUST**]$_{F}$.
'The child *must eat* the vegetables.'

(29) [**YESTERDAY** RAIN **YESTERDAY**]$_{F}$.
'It rained *yesterday*.'

(30) IX$_1$ SAVE [**NOT WANT** FINE WRITE **WANT-NOT**]$_{F}$.
'I was safe, (the policeman) *didn't want* to write the fine.'

(31) PARTY [**ALL** COME **ALL**]$_{F}$.
'*Everybody came* to the party.'

For some authors doubled elements represent a specific focus type: emphatic focus (Kimmelman & Pfau 2016), in which a single focused element is emphasized out of a bigger focused constituent. Kimmelman (2014) argues that 'doubling is used to foreground a part of new information of the sentence if the signer feels the need to distinguish between more and less relevant new information'. Data observed in LSC seems to follow this claim, since the examples above show many cases of broad focus in which just part of the focus is doubled. In example (23) the verb ESCAPE is doubled, and it is part of a VP-focus. Also, in example (26) the wh-particle WHERE is doubled and it is part of an all-new focus sentence. The reasons behind doubling thus may be of pragmatic nature. In LSC, doubling may not exclusively mark focus, just like what happens in RSL and NGT, where doubling has been also found in foregrounded topics (Kimmelman, 2014). As interesting as this matter is, a deeper analysis of doubling constructions is beyond the scope of this dissertation.

3.4.2 Prosodic markers

As mentioned in section 2.4 prosody in SLs is mainly marked by NMMs (Pfau & Quer 2010). Consequently, some NMMs are involved in the expression of focus. Focused signs may also be marked by manual features, such as a longer duration of the sign, a larger movement trajectory, and a higher velocity of the movement, as explained in section 2.6. This section provides a basic description

of both manual and non-manual prosodic marking of focus constructions in LSC.

3.4.2.1. Manual markers

Research on SLs has found that focused signs are stressed by means of manual markers like larger duration in the articulation of signs, higher velocity and larger movement trajectory (Kimmelman & Pfau 2016). In this dissertation I offer a brief description on duration, repetition, and localization in signing space of LSC focused signs, which I measured using ELAN. Questions related with velocity, muscle tension, and length of the movement of signs might also be relevant but are not addressed in the present study due to a lack of proper tools to measure them; they are therefore left open for future research. As will be shown, not analysing these features does not have any implications for the analysis proposed in this dissertation.

3.4.2.1.1 Duration of the sign

Focus involving contrast tends to be more marked in comparison with focused elements in which no contrast is observed, such as information focus (Zimmerman & Onea 2011). In SLs focused signs are usually articulated with a longer duration in time (Kimmelman & Pfau 2016, 2021). This section analyses the duration of signs in LSC by measuring and comparing different types of focused signs to their non-focused counterparts.

In line with other analysis (Gökgöz et al. 2016) in LSC there is a difference in duration between a focused sign and its non-focused counterpart. Focused signs (both information and contrastive focus) have a larger duration in comparison with their non-focused counterparts. This is illustrated in Table 3.1 below, where duration of the sign PIZZA is measured in four different contexts: (32) non-focus, (33) information focus, (34) selective focus, and (35) corrective focus. There are also slight differences in duration among different types of focus: a shorter duration in the expression of information focus signs (33) as compared to its contrastive focus counterparts (34-35). Intuitively one would expect a correction to be more contrastive than a selection, so it is striking that the example for the selective focus sign (34) has a much longer duration in its articulation, a duration of 642 ms, than its corrective focus counterpart (35), which has a duration of 366 ms. A possible explanation is that the sign used for representing selective focus is fronted, and in a position of topicalization signs tend to have a pause after being articulated, which explains the significant difference between both durations.

	Items	Sign Duration
Non-focused	Context: Your friend says that Mary ate pizza, but you know that she also ate salad. (32) MARY PIZZA ONE EAT NO, [SALAD]$_F$ ADD . 'Mary didn't eat (only) a pizza, (she) also ate a salad.'	177ms
Information focus	Context: You tell your friend what Mary ate. (33) MARY [PIZZA]$_F$ EAT. 'Mary ate a pizza.'	270 ms
Selective focus	Context: Your friend is not sure if it was a pizza or a burger that Mary ate. You clarify it. forward bl re (34) [PIZZA]$_{F.}$ MARY EAT. 'Pizza, Mary ate.'	642 ms
Corrective focus	Context: Your friend says that Mary ate pizza and a burger, but you correct him. (35) MARY EAT OTHER NOTHING, GOAL [PIZZA]$_F$ THAT'S-IT. 'Mary only ate pizza, nothing else.'	366 ms

Table 3.1. Duration of the sign PIZZA in different contexts.

Other SLs like NGT and RSL show the opposite pattern: duration of signs under information focus scope was longer than the one found for signs under selective (contrastive) focus scope (Kimmelman, 2014). A possible influence that the author points out is that in the elicitation of selective focus, focused alternatives were given in the previous questions that were asked to the informants, unlike information focus items that were not mentioned in the previous context. In the elicitation of LSC data the focused alternatives within a selective focus context were also given in the previous context; however, this matter does not influence the duration of the sign. Instead, when the focused sign is accompanied by intensifiers like SAME or an index sign it tends to have a shorter duration, since the relevant focused information is already emphasized by the surrounding signs (which are also prosodically marked) and possibly by the syntactic structure. (36) below is a minimal pair with (34) above. In (36) the focused sign duration is 181 ms as compared to example (34) where the duration of the sign is 642 ms.

(36) Context: Your friend is not sure if it was a pizza or a burger that Mary ate. You clarify it.

hn

re

[PIZZA IX SAME]$_F$ MARY EAT.

'It was a pizza that Mary ate.

One could say that (34) is mainly marked prosodically (even though is also fronted), and (36) is marked syntactically through a cleft

construction, since SAME is a relative marker in LSC and this construction is very similar to other cleft constructions described in the SL literature (see Branchini 2014 for a description of clefts in LIS). This would be a pretty good argument to explain why the prosodic manual marker of duration is not present in (36): there is a more marked syntactic structure that is enough to express focus and contrast, so prosody is not needed here, or at least it is not a key or crucial marker as much as it is in (34). However, despite the translation that I chose for example (36) at this point it is not clear if the syntactic structure in (36) is actually equivalent to a cleft. For now, we will assume it is, but I will come back to this question in Chapter 6.

3.4.2.1.2 Repetition of the movement

Some signs in LSC may repeat their movement more times when they are under the scope of focus than when they are not. For instance, in example (37) the movement of the sign HORSE is repeated five times when focused, whereas in its citation form this sign is repeated two times at most.

(37) What is the man riding?
HORSE+++ WOMAN BIKE.
'A horse, and the woman a bike.'

There are other factors that may lead a signer to repeat the movement of a sign more times than usual. If the sign is placed in final position of a prosodic constituent like an intonational phrase

there is usually a hold that may lead the signer to produce more repetitions of a sign (see Sandler 2012). Other pragmatic situations (driven by extralinguistic factors) like, for instance, trying to remember something might also lead the signer to articulate more repetitions of the movement of a sign.

3.4.2.1.3 Use of signing space

Signing space is used mainly in focused constructions that present some contrast. In the data analysed, selective and corrective focus are the ones which show a particular use of signing space. In this type of constructions, focused elements which involve contrast are usually placed in different locations of signing space, the default locations being left and right sides of the body of the signer. In examples (38) and (39) the sign RIDE is placed in different locations in the signing space. Therefore, in LSC, signers make use of this left-right distinction in signing space, usually placing each contrasted element on the opposite sides of the signing space.

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

left sp

left bl+ht

hn

[HORSE RIDE]$_{F.}$

(He is) riding a horse.

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

right sp
right bl+ht
hn
[BIKE$_y$ RIDE]$_F$.
(She is) riding the bike 

Data include some examples in which signers do not make use of a specific position in manual signing space to articulate the focused element in contrast. In Chapter 4 a further analysis on these examples is offered.

To sum up, LSC focused signs show a longer duration and more repetitions than its unfocused counterparts. Moreover, when the focus expressed involves explicit contrast, LSC signers make use of signing space in order to express it, usually locating the signs in the opposite sides of the manual signing space in front of them.

3.4.2.2. Non-manual markers

Focus in LSC may also be expressed only by prosodic non-manual markers (NMMs). In example (40) the object-focus SKI is expressed in-situ and marked by raised eyebrows, a leftward body lean and the use of the left side of signing space.

(40) What do you like more: skiing or snowboarding?
left sp
left bl+ht
re
[SKI]$_F$ LIKE MORE.

'Skiing I like more.'

The most common NMMs found in the expression of focus in LSC are eyebrow movement, mouthing, body leans, and head movements, as will be presented in the upcoming subsections.

3.4.2.2.1 Eyebrow movement

Eyebrow movement is described in many SLs as a marker of focus. The most common eyebrow movements in SLs are raised eyebrows and furrowed eyebrows. In DGS raised eyebrows mark corrective focus (Waleschkowsky 2009). In ASL and LSF eyebrow movement has also been claimed to be a consistent marking of different types of focus (Lillo-Martin & de Quadros 2008).

In LSC raised eyebrows are mostly found in information and corrective focus occurrences. Example (41) is an example of information focus, where the focused constituent remains in its original position and is marked with raised eyebrows.

re

(41) [WOMAN PERSON]$_F$ APPLE EAT-APPLE.

'The woman is eating an apple.'

Raised eyebrows may also occur in instances of selective and corrective focus where the focus constituent is fronted. In (42) below repeated above as (20) below the sign PIZZA is fronted and marked with raised eyebrows.

(42) Context: Your friend is not sure if it was a pizza or a burger that Mary ate. You clarify it.

forward bl

re

[PIZZA]$_F$ MARY EAT.

'Pizza, Mary ate.'

Furrowed eyebrows are mostly found in corrective focus sentences. (43) is an example of an information focus sentence and (44) is an example of a corrective focus sentence. The former displays raised eyebrows while the latter features furrowed eyebrows. Moreover, other NMMs differ in these two examples, such as, for instance, a head thrust in example (44), which is not found in example (43).

(43) What is the neighbour doing with the car?

re

IX$_3$ [PUSH]$_F$.

'He is pushing (it)'

(44) The neighbour is cleaning the car, right?

fe

NO [PUSH]$_F$.

'No, pushing (it)'.

However, furrowed eyebrows seem to be more related to negation (which is present in all examples shown) than to the expression of focus, since this NMM is also found quite systematically in the non-focused elements of the sentence that include an explicit negation like example (45) below.

(45) You have to help your mother with her English homework, right?

fe
NO, MOTHER ENGLISH 1-HELP-3 NOT-NECESSARY,
re
[FATHER FOOD COOK 1-HELP-3]$_{F}$.
'No, I don't have to help my mother with her English (homework), I have to help my father cooking dinner.'

Despite the examples that were just presented, LSC does not show consistency in eyebrow movement as a marker of focus. In the data some examples of selective focus show a specific eyebrow marking that is not frequent for this type of focus constructions. For instance, in the items that were presented with a neutral wh-question and a picture, selective focus does not present any eyebrow marking at all. However, in the data that were presented with a previous signed context, other pragmatics factors, such as some presuppositions, trigger the appearance of this NMM. Also, corrective focus examples differ in the use of eyebrow movement: furrowed eyebrows are mostly found when there is an explicit negation, but not in examples where the negation is implicit. So, we can conclude

that for selective focus and corrective focus there is no consistent eyebrow movement marking focus.

3.4.2.2.2 Mouthing

Mouthing has been attested in focused signs for different SLs. Crasborn and van der Kooij (2013) and Kimmelman (2014) found mouthing in many focused constructions in NGT. However, mouthing is generally not considered a focus marker since it may also appear in non-focused parts of the sentence.

In LSC mouthing is found repeatedly in the data to mark focus regardless the type of focus construction, as shown in example (46), where the focused signs POTATOES and AFTERNOON are articulated along with the mouthing of the corresponding word in Spanish. However, like in other SLs, mouthing may also appear in non-focused elements of the sentence, and this issue makes it difficult to determine whether mouthing is a focus marker or not, as illustrated in example (47) where the topics of the sentence are also articulated with a mouthing.

(46) mth mth
NO [POTATOES]$_F$ THAT'S IT. [AFTERNOON]$_F$ REST.
'No only potatoes I'll buy the rest in the afternoon.'

(47) mth mth mth mth
[WOMAN]$_T$ [WINE]$_F$ DRINK [MAN]$_T$ DRINK [COKE]$_F$.
'The woman is drinking wine and the man is drinking a coke.'

In the examples where mouthing appears also in non-focused parts of the sentence, it seems to be more prominent in focused constituents than in the rest of the sentence, like in example (48) below, where the mouthing for BLUE is more intense than the mouthing for SEA.

(48) *Context*: The sea is yellow.

mth mth mth

NO SEA SPECIFIC [BLUE]$_F$.

'No, the sea is blue.'

Also, mouthing appears more frequently in focused signs than in unfocused ones. It is no surprise that signers might want to use all resources available to stress a focus element.

Some recent investigations show that signers might be code blending when using mouthing (Bank et al. 2011), but the truth is that the nature and functions of mouthing at the grammatical level (beyond the lexical level) is still not clear in the SL research community. It would be obvious to think that mouthing can be grammaticalized in the language as a natural process, just as many gestures that are used in the hearing community have grammaticalized into non-manual markers that fulfil different functions (eyebrow movements, body leans, head movements, etc.). However, the fact that mouthing represents a different (spoken) language makes it more difficult to separate a use due to code blending from a grammaticalized use. What is clear is that mouthing is integrated in LSC and used among deaf signers. It has been argued that it is mostly used when deaf people address hearing

people who might not have a good level of sign language and might not understand very well the signer's discourse. However, mouthing appears in every sentence in LSC independently of the hearing/deaf status of the interlocutors. There are specific situations where mouthing becomes more prominent, like, for instance, when a new element is being introduced in discourse or when the interlocutor (deaf or hearing) might not know or understand the sign. All in all, the nature of mouthing is still a matter of debate, and this dissertation does not address a deeper analysis. Future research should analyse the different aspects of mouthing in LSC (types, intensity, etc.) in different situations and different linguistic levels in order to determine more thoroughly its grammatical functions.

3.4.2.2.3 Body leans

Body leans have been described for many SLs associated with contrastive focus (Wilbur, Crasborn & van der Kooij, Kimmelman 2014, Calderone 2020, among others). In LSC leftward and rightward body leans are repeatedly found in contrastive focus examples. In example (49) below, the signer articulates the first contrasted element on the left side of his body, and the second on the right.

(49) Who finished the BA this year, you or your brother?

left bl right bl

[IX_1 MAN SIBLING] IX_3 BA FINISH, IX_1 MASTER.

'My brother finished the BA, I finished the master.'

Figure 3.1. Example of selective focus sentence with left and right body leans.

LSC also displays forward and backward body leans in some situations, even though not as frequently as leftward and rightward body leans. For instance, if there is a contrast between past and present actions, signers may also use forward and backward body leans, aligned with the absolute temporal axis, as illustrated in example (50).

(50) You finished the BA this year, right?

backward bl forward bl

BA FINISH NO [PAST]$_F$, YEAR IX SPECIFIC [MASTER FINISH]$_F$.

'No, I didn't finish the BA, it was in the past. This year I finished the master.

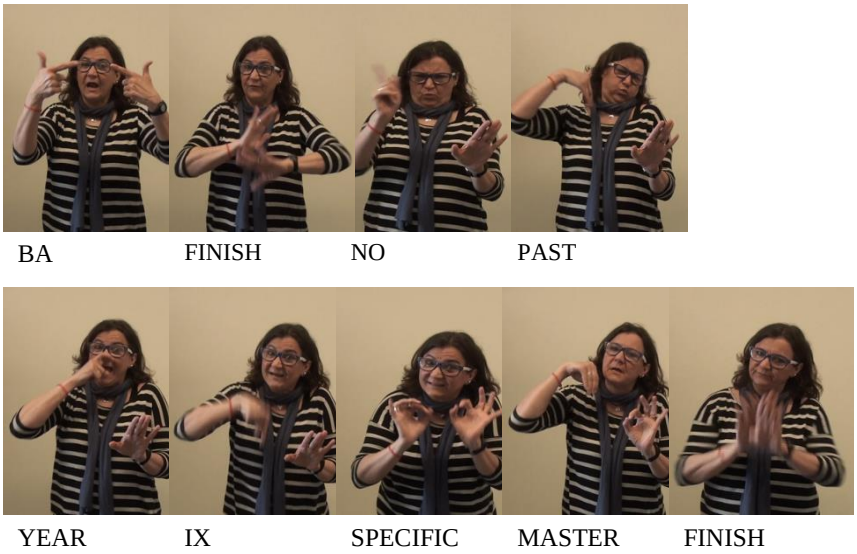


Figure 3.2. Example of corrective focus with forward and backward body leans.

In sum, body leans in LSC are used in the expression of focus constructions involving contrast. Leftward and rightward body leans are more frequent, but sometimes forward and backward body leans are also used due to other factors (see Chapter 4 for further details on the use of forward and backward body leans in the expression of contrast).

3.4.2.2.4 Head movements

Head movements are also attested as focus markers in many SLs. Lillo-Martin & de Quadros (2008) found that backward head tilts appear consistently in different types of focus in ASL and LSF. In LSC, data show that different types of head movements (head

thrusts, head tilts, and head nods) are involved in the expression of different focus types.

Information focus may be expressed with a forward head tilt, accompanied by a chin down movement, as shown in (51). Other examples of information focus show a backward head tilt with a chin up movement, like example (52). Forward head tilt is more frequent in the data analysed but neither of these head movements appear to be very systematic.

(51) What is the girl doing now?

forward_ht

NOW [SNACK]$_F$ IX$_3$.

'She is eating a *snack* now.'

(52) What is the suspect doing?

backward_ht

NOTHING-UNUSUAL [BANANA EAT-BANANA]$_F$ IX$_3$.

'Nothing unusual, he is *eating a banana*.'

Contrastive focus may be expressed accompanied by other head movements such as head tilts, head nods, and head thrusts. Head tilts appear in any contrastive focus type analysed in this thesis: parallel, selective or corrective. Example (53) shows an instance of parallel focus expressed with leftward and rightward head tilts and body leans, and the use of the opposite sides of space.

left sp right sp
left ht+bl right ht+bl

(53) RAQUEL PERSON [INTERPRETER]$_F$ ALSO [LINGUIST]$_F$.
'Raquel is an *interpreter* and a *linguist*.'

Head nods are frequently found in selective focus, accompanied with a head tilt and/or body leans from left to right, as illustrated in (54) below. Kimmelman (2014) also found that selective focus in RSL is marked by a head nod.

(54) What is the girl eating, an apple or an icecream?

right sp
right ht+bl
hn
[APPLE]$_F$ EAT.
'(She is eating) an apple.'

Head thrusts appear frequently in corrective focus items in LSC also accompanied with a head tilt and/or body leans from left to right, as illustrated in (55).

(55) You ate an apple, right?

right sp
right ht+bl
hthr
IX$_1$ NOTHING, [WOMAN]$_F$ IX$_3$.
'I didn't, the woman did.'

In short, different NMMs are involved in the expression of focus in LSC. Table 3.2 below summarizes the most systematic NMMs found in the data and the focus type they appear with; in the table below *v* means that the NMM is used systematically in that type of focus, *x* means that it is not used at all, and *v/x* indicates that this NMM can either appear or not in a less systematic way.

	Information focus	Parallel focus	Selective focus	Corrective focus
Eyebrow raise	v/x	x	x	v/x
Eyebrow furrow	x	x	x	v
Mouthing	v	v	v	v
Body leans	x	v	v	v
Head tilt	x	v	v	v
Head nod	x	x	v	x
Head thrust	x	x/v	x	v
Use of space	x	v	v	v

Table 3.2. NMMs involved in the expression of focus in LSC.

3.5 Focus interpretation in LSC

It has been shown before that focus marking differs largely depending on different factors: the context of the sentence, the scope of the focus constituent (narrow focus vs. broad focus), the presence of salient contrast, etc. Focus may also be deaccented especially in broad focus sentences, so context plays an important role in separating focused and unfocused parts of the sentence. This section tries to disentangle how focus is interpreted in LSC analysing different contextual situations following the QUD theory, that is taking into account the previous qud for the interpretation of focus.

3.5.1 How to interpret broad focus

In LSC V-focus (56), VP-focus (57), and all-new-focus (58) do not always show a specific marking. Sentences (56-58) present the basic word order in LSC (SOV). The context helps us to disambiguate which part of the sentence is under focus scope.

(56) What is he doing with the bread?
BREAD [EAT-SANDWICH]$_F$.
'(He) is eating the bread'.

(57) What is he eating?
[BANANA EAT-BANANA]$_F$.
'(He) is eating a banana.'

(58) What is happening?
[WOMAN COKE DRINK]$_F$.
'A woman is drinking a coke.'

If we present these sentences out of the blue any part could be focused, so context is crucial to disambiguate the meaning of focus in these sentences.

3.5.2 Given vs. new

Selective focus sentences present referentially given information that was introduced in the previous discourse and that is already salient in the common ground. Even though the referent is given it is important to notice that the information that is being updated is new in relation to the previous context (Gundel & Fretheim 2004). The markings that appear in the expression of selective focus involve affirmation through a head nod that seems to be tightly connected to verum focus in SLs. In example (59) below the focused constituent is given in the previous question that is formulated to the signer. This focused constituent is expressed with a head nod plus a combination of NMMs used in the expression of contrast (see Chapter 4).

(59) What is the woman doing: riding a bike or riding a horse?
right sp
right bl+ht+hn
[BIKE RIDE]$_F$.
'Riding a bike.'

3.5.3 Verum focus

The phenomenon of doubling has been described for some African languages as a way to express verum focus. In Medumba, verb focus is expressed by means of a verbal copy following vP/VP, which is focus-marked by á:

⇒ Doubling also required with predicative adjectives

(39) à **bɛ á bɛ** à kɨ́ fɔg á fɔgə
it red Foc red it not white Foc white
'It is *red*, not *white*'

(Zimmerman & Kouankem 2013: 11)

Unlike what has been described for some spoken languages (Zimmerman & Kouankem 2013) verum focus in LSC is not only marked by doubling but also by a NMM: a head nod that expresses affirmation. Doubling could appear in verum focus but in SLs it is associated to many other functions (see Kimmelman 2014). Therefore, it is a much more complex phenomenon than doubling in spoken languages.

Verum focus expressed by doubling in some contexts seems to be connected with the previous presupposition that the event is negated. In example (60) below doubling could be used because it is previously presupposed that the signer did not go to the party. However, same meaning can be expressed without the doubling just with the head nod, as illustrated in example (61).

(60) But you didn't go to the party…

hn

IX$_1$ [GO PARTY GO]$_F$.

'I *did go* to the party!'

(61) But you didn't go to the party…

hn

IX$_1$ [GO PARTY]$_F$.

'I *did go* to the party!'

Another way of marking verum focus is through the manual sign YES[12], which emphasizes the focused part of the sentence. Example (62) triggers the implicature that Jordi did not drink any alcohol by adding the adversative BUT and the sign YES to enforce the meaning. Zorzi (2018) argues that but in this example is not adversative but corrective, like Catalan 'sinó' or Spanish 'sino', or English corrective use of 'but'. However, it is only grammatical in verum focus constructions like (62) below that involve the sign YES. If BUT here is corrective one would expect the same sentence to be grammatical when removing the sign YES, but it turns out it is completely ungrammatical (63). Example (62) is only felicitous in a context where someone presupposes that Jordi did not drink any alcohol because he did not drink beer, but the signer corrects it by adding that indeed Jordi did drink sangria, which is an alcoholic drink.

[12] The sign yes is always articulated accompanied by a head nod expressing affirmation.

re re+hthrb
hl ip hl ip

(62) JORDI BEER CL: DRINK NOT BUT SANGRIA YES. [LSC]
'Jordi didn't drink beer, but he did drink sangria.'
(adapted from Zorzi, 2018: 139)

re re+hthrb
hl ipsil. hl ipsil.

(63) *JORDI BEER CL: DRINK NOT BUT SANGRIA. [LSC]
'Jordi didn't drink beer, but sangria.'

3.5.4 Focus vs contrast

Focus operates at the level of alternatives and contrast seems to operate orthogonally at the discourse level. That would explain why CF is marked differently than IF and why these marking spreads over contrastive topics (CTs) as well (see Chapter 4).

The Alternative Semantics explanation for CTs is convincing but it does not account for the differences found in many languages in the marking of IF and CF, unless we just assume that there is not a specific marking for triggering alternatives, and that contrast markers in LSC are just marking discourse relations between the salient/explicit alternatives. This does not explain, though, that parallel contrast displays these markings as well, since in parallel contrast there is no explicit discourse relation like opposition (see Repp 2016, who does not consider parallel focus contrastive).

An explanation would be that these markers are actually marking semantic parallelism and not contrast. However, semantic parallelism already involves contrast: due to similarity plus dissimilarity. A contrast between meanings of two alternatives that belong to the same set of alternatives. If contrast markers in LSC are marking contrast at the discourse level, then we would expect no specific marking of focus at all, and the marking would completely depend on other features, like parallelism, topicalization, etc. However, as we have seen before in IF it is common to place focus instances at the end of the clause, so at least there is some marking in the word order of IF sentences. I advanced some key points for one of the main claims of this thesis in this paragraph that will be developed in more detail in Chapter 4.

3.6 Chapter summary

This chapter shows that LSC makes use of both syntax and prosody for expressing focus. Regarding syntax, rightward movement is commonly found for the elements under the scope of focus. However, instances without any word order deviation can also be found. In these cases, specific NMMs are present in order to mark the focus. Moreover, doubling of part of a broad focused constituent can be used for emphatic focus marking purposes, in order to distinguish more relevant information from the focused constituent. Clefting is also attested as a strategy for the marking of focus.

Regarding prosodic markers, two main distinctions can be made: (1) prosodic manual markers, and (2) prosodic non-manual

markers. Relevant prosodic manual markers in focused constituents are duration and repetition. As for prosodic non-manual markers, the main NMMs found in the data under the scope of focus are eyebrow movement, mouthing, body leans, and head movements. Raised eyebrows are mainly an information focus marker, and furrowed eyebrows are found mostly in corrective focus sentences when there is an explicit negation. However, selective focus sentences do not present any specific eyebrow movement. By contrast, mouthing appears in all focus types and also in some unfocused parts of the sentence, which makes it difficult to acknowledge it as a marker. Left-right body leans are used to express contrast among different focused alternatives. Some instances of forward and backward body leans are also found in some specific examples, which seem to be triggered by independent factors. This marker is also found in contrastive topics, so it cannot be treated as a focus marker itself, instead it seems to be a contrast marker that only arises when there are salient contrasted alternatives. As for head movements, head nod, head thrust, and head tilt are the most common ones found in the data elicited. These head movements appear in contrastive focus and are distributed in different ways depending on the focus type. Head movements, just like body leans, only appear whenever there is contrast, so the interpretation and use of these markers will be further explained in Chapter 4, devoted to the notion of contrast.

			IF	SL	CF
Syntax		Syntactic movement	Movement of the focused element to final position		
		Doubling	-	-	-
		Focus particles	Yes	-	Yes
		Wh-clefts	-	-	-
Prosody	Manual markers	Duration	Longer duration of the sign		
		Repetition of the sign	More repetitions of the movement		
		Use of manual signing space	-	Left-right	Left-right
	Non-manual markers	Eyebrow movement	Raised brows	-	Furrowed brows
		Mouthing	Yes	Yes	Yes
		Body leans	-	Left-right	Left-right
		Head movements	Backward and forward head tilts	Head nods + (left-right head tilts)	Head thrust + (left-right head tilts)

Table 3.3. Summary of the main strategies involved in the expression of focus in LSC.

As for the interpretation of focus, context is crucial to disambiguate the scope of the focus in broad focus sentences. Verum focus is marked with the sign YES or a repeated head nod, which is the non-manual part of the sign YES.

Lastly, we have seen that there is a common combination of NMMs repeated among different types of contrastive focus. What is unclear at this point is if these markers are actually marking contrast or some other feature like parallelism (assuming that parallelism is not a type of contrastive relation). Chapter 4 analyses the notion of contrast in more detail and shows that this specific combination of prosodic markers correlate with different semantic-pragmatic interpretations in contrastive examples.

4 CONTRAST

As discussed in section 2.1.3 the notion of contrast is controversial. Some theories assume that contrast is a feature of topic and focus (Chafe 1976, Kiss 1998), while others claim that contrast is an independent notion, orthogonal to other Informantion Structure (IS) notions, such as topic and focus (Vallduví & Vilkuna 1998, Molnár 2002, among others).

In this thesis contrast is understood as the dependency relation between two or more contextually salient alternatives in discourse that belong to the same set. Salient alternatives may be explicit in the discourse under analysis, explicit in the previous discourse, or implicit. The aim of this chapter is to provide empirical evidence from Catalan Sign Language (LSC) that contributes to the typological discussion on the definitions of the notion of contrast in IS. I present a proposal of the prosodic and morphophonological contrast markers in different types of contrast in LSC and an analysis of the different pragmatic interpretations that correlate with them.

This chapter is mostly based on Navarrete-González (2019, 2021) and Navarrete-González & Zorzi (2019), and it is structured as follows. Section 4.1 introduces the theoretical framework followed in the chapter. Section 4.2 presents a description of contrast markers, their restrictions in some contexts and their pragmatic interpretation. Section 4.3 gives further evidence from

coordinated and subordinated structures for supporting the claim that the notion of contrast in LSC is an independent category in IS.

4.1 Contrast types and their realization

Some theories on contrast have developed fine-grained analyses that try to account for the notion of contrast in all its complexity including different sorts at different levels of language. According to these theories contrast involves different types that can be found in both information and discourse structure, at the semantic and at the pragmatic level (Vallduví & Vilkuna 1998, Molnár 2002, Umbach 2004, Mayol 2010, Repp 2016).

Through crosslinguistic comparison, Molnár (2002) shows that contrast is an independent category superimposed on topic and focus. Contrast can be found at the pragmatic level, where it is found in a closed set of alternatives; and at the semantic level, where it involves an open set of alternatives. This work proposes the following labels for different contrast types:

	Focus?	Topic?
Closed set	CONTRAST	LD-CONTRAST
Open set	FOCUS OPERATOR	I-CONTRAST

(Molnár 2002: 109)

At the pragmatic level, Molnár distinguishes CONTRAST and LD-CONTRAST (left dislocation contrast). CONTRAST is expressed in

many languages moving a focus to the left periphery when there is explicit mentioning of the alternatives or the alternatives are salient in discourse. LD-CONTRAST is also moved to the left periphery and needs alternatives to belong to a closed set. It is used to mark a shift of attention from one topic to another.

At the semantic level, two types of contrast are connected to open sets of alternatives: FOCUS OPERATOR, which involves exhaustivity since it excludes all possible alternatives, and I-CONTRAST (intonation contrast), which does not involve exhaustivity, since it only excludes some of the alternatives. I-CONTRAST is expressed by intonation and is traditionally linked to topics; however, Molnár provides evidence from English (1) that it can be superimposed on both topic and focus. The type of contrast found in Finnish (2) is always expressed by the initial syntactic position and can be superimposed on topics and focus too.

(1) Q: What did the pop stars wear?
A: The [*female*]$_{T}$ pop stars wore [*caftans*]$_{F}$.
Residual Topic: What did the male pop stars wear?
(Molnár 2002: 106)

(2) A: Pekka lensi Tukholmaan.
‘Pekka flew to Stockholm.’

B: [KONTRAST Reykjavikiin] Pekka lensi .
‘To Reykjavik, Pekka flew.’
(Molnár 2002: 104)

Contrast has been also classified in different types depending on the level we are looking at: at the level of alternatives or at the discourse level (Umbach 2004, Repp 2016).

4.1.1 Contrast at the level of alternatives

Vallduví & Vilkuna (1998) analyse three different languages: Finnish, Hungarian and Catalan, and argue that focus and contrast (rheme and kontrast in their terms) are indeed different categories that must be distinguished. As mentioned in section 2.1.2, in this work *kontrast* is treated as a semantic operator (=focus in Alternative Semantics) that triggers sets of alternatives and it is a category that belongs to the quantificational structure domain. They claim that "if an expression is kontrastive a membership set M = {…, a, …} is generated and becomes available to semantic computation as some sort of quantificational domain" (Vallduví & Vilkuna 1998: 83). Kontrast may overlap with both focus and topic, so it does not need to be new information (i.e. contrastive topics). *Rheme* by contrast contains only new information and belongs to the information structure domain.

Kontrast may involve different types: Identificational kontrast, Exhaustiveness kontrast and Thematic kontrast, which are formally defined as follows.

Identificational kontrast: if M = {a, b, c} and P($x \in$ M), then P(a).

Exhaustiveness kontrast: if M = {a, b, c} and P($x \in$ M), then ($\neg$P(($y \in$ M) $\neq$ a)).

Thematic kontrast: if M = {a, b, c} and P(a), then P´ (($y \in$ M) $\neq$ a).

(Vallduví & Vilkuna 1998: 84-87)

In the analysis of Finnish, Hungarian and Catalan, Vallduví & Vilkuna found that Finnish and Hungarian provide evidence for the distinction between rheme and kontrast. In Finnish being kontrastive is a necessary condition to appear in a specific position in the sentence, named the *K-field*. Non-kontrastive elements instead appear in a different position: the V-field if it is a rheme and the T-field if it is a theme, so the K value is the one determining the structural realization of kontrast. In Hungarian, non-kontrastive rhemes remain in their canonical position (IP/VP) and kontrastive rhemes appear in a marked preverbal slot (FP). In this language themes show a different structural pattern than rhemes and they always appear in clause peripheral position (both kontrastive and non-kontrastive). Both languages show empirical evidence for the existence of the category of kontrast.

Catalan instead does not show strong evidence for the claim of kontrast as an independent category, since both rhemes and themes have specific positions independently of kontrast. Rhemes appear within the IP and themes appear in topic position (TOP).

Umbach (2004) claims that the notion of contrast cannot be considered a unique or single notion, since there are different types of contrast both at the information structure (IS) and at the discourse structure (DS) level, which trigger different

interpretations. At the IS level, contrast is divided into i) contrast due to similarity plus dissimilarity, which is a prerequisite for alternatives and thus for contrastiveness, and ii) contrast due to exclusion, which triggers exhaustivity. The former is exemplified in sentence (3) below. The words *beer* and *port* are contrasted referents that are similar, since they have a common integrator –both are drinks–, and are dissimilar, since both have semantic independence –both have different independent meanings.

(3) John bought the *beer* and/but Mary bought the *port*.

(Umbach 2004: 6)

As for contrast due to exclusion, it can be further divided into two varieties with semantic differences. The first variety is exemplified in (4) below, where the contrastive focus 'Ronald' excludes the possibility that some other item instead of 'Ronald' makes the proposition true. In example (5), instead, the only-phrase 'only Ronald' excludes the possibility that some other item in addition to the focused one makes the proposition true.

(4) (A: Mary made the salad and Anna the hamburgers.)
B: *Ronald* made the hamburgers.

(adapted from Umbach 2004: 7)

(5) (A: Tonight, Ronald and Rosa went shopping.)
B: Tonight, only *Ronald* went shopping.

(adapted from Umbach 2004: 8)

Both varieties of contrast due to exclusion are exemplified only via the pragmatic context of a correction in Umbach's work; however, this type of context could also be found in the context of a selection between two alternatives (selective contrast) in LSC, since the same 'exclusive' meaning could be derived (see section 4.2.3).

Similarly to Umbach, Repp (2016) also analyses contrast taking into account two dimensions: i) the alternativeness of constituents and ii) the discourse relations between two segments. The former may involve different conditions for contrastiveness to hold: i) explicit alternative, ii) explicit alternative set, iii) implicit alternative set. Repp states the following hypothesis:

Hypothesis about contrasting constituents (C-Const)

An F-marked constituent is a candidate for being a contrastive constituent in a sentence if one of the conditions in (a)-(c) holds:

(a) There is a constituent α in a precedent sentence, $[\![\alpha]\!]^o \neq [\![\beta]\!]^o$, such that $[\![\alpha]\!]^o \in [\![\beta_F]\!]^f$ = *explicit alternative* (ExplAlt)

(b) There are constituents α_1, ..., α_n (n>1) in a preceding sentence or preceding sentences such that $[\![\beta_F]\!]f=¨\{[\![\alpha_1]\!]^o, \ldots, [\![\alpha_n]\!]^o\}$
=*explicit alternative set* (ExplAltSet)

(c) There is a constituent α in a preceding sentence such that $[\![\alpha]\!]^o$ corresponds to $[\![\beta_F]\!]^f$, where 'correspond to' subsumes relations between kinds and their representatives, plural individuals and their atomic parts, generalitzed quantifiers and elements of their witness sets.
=*implicit alternative set* (ImplAltSet)

(Repp 2016: 274)

Each condition is exemplified in the following examples. In example (6) all the alternatives are explicit in the sentence (ExplAlt). In example (7) the complete alternative set (mentioning each alternative) is explicitly introduced in the first conjunct (*John, Pete and Josie*) (ExplAltSet). In example (8) an implicit alternative set is introduced in the first conjunct (*fruit*), which does not explicitly mention each alternative included in it (ImplAltSet).

(6) [Peter]$_{C1}$ went to [Rome]$_{C2}$ but [Marc]$_{C1}$ went to [London]$_{C2}$.
(Repp 2016: 271)

(7) John, Pete and Josie all offered help. I asked [John]$_{F}$.
(Repp 2016: 272)

(8) John was choosing fruit. He picked [a banana]$_{F}$.
(Repp 2016: 275)

4.1.2 Contrast at the discourse level

At the DS level, Umbach analyses the discourse relations CONTRAST (9) and CORRECTION (10) through structures with *but*.

(9)

a. In Paris, Ronald only went to the *cinema*.
b. In Paris, Ronald went to the *cinema*, but he didn't go to the *opera*.

(10)

a. (A: Yesterday, Ronald went to the opera.)
B: Ronald went to the *cinema*.

b. Yesterday, Ronald did not go to the *opera* but to the *cinema*.

(Umbach 2004: 14)

Both discourse relations behave similarly to contrast at the IS level and seem to be intertwined with contrast due to exclusion: both require the similarity plus dissimilarity condition and both indicate the exclusion of one of the alternatives; however, CONTRAST excludes the possibility that the second alternative –which is implicit in (9a)– is true in addition to the first one (like *only*-phrases), and CORRECTION excludes the possibility that the first alternative is true instead of the second one (like CF).

Regarding discourse relations Repp (2016) states that contrast may involve different degrees of contrastiveness that may be categorized into different discourse relations: i) Smooth discourses (Q-A and SIMILAR), ii) OPPOSE, and iii) CORR. The discourse relation Q-A consists of a question and a congruent answer. The discourse relation SIMILAR is analogous to parallel constructions: there are two or more propositions that can be true in the world of evaluation, which make the same contribution to the current question under discussion (QUD)[13]. In the discourse relation OPPOSE both propositions can be true in the world of evaluation, but they make opposing contributions to the current QUD. Finally, in the discourse

[13] The idea behind the QUD is that each sentence in discourse addresses or answers a question, which is often implicit (for further details see Roberts 2012).

relation CORR one proposition rejects the other either i) because both propositions cannot be true in the world of evaluation or ii) because the corrected proposition does not meet certain background assumptions needed for it to be considered felicitous. In Repp's categorization the discourse relations Q-A and SIMILAR are not considered contrastive vis-à-vis OPPOSE and CORR, where CORR involves a higher degree of contrastiveness than OPPOSE. This is stated in the following hypothesis:

Hypothesis about contrastive discourse relations (C-DRel)

The degree of contrastiveness of the discourse relation between two discourse segments d_1 and d_2 increases from (*n*) to (*ii*).

(n) Smooth discourses (=non-contrastive)

a. [Q-A$_{(n)}$]: d_2 is associated with a question meaning, i.e. a set of propositions; the proposition associated with d_2 is an element of that set

b. [SIMILAR$_{(n)}$]: the proposition associated with d_1 and the proposition associated with d_2 can both be true in the evaluation world; d_1 and d_2 make the same kind of contribution to the current question under discussion

(i) [OPPOSE$_{(i)}$]: the proposition associated with d_1 and the proposition associated with d_2, can both be true in the evaluation world; d_1 and d_2 make opposing contributions to the current question under discussion.

(ii) [CORR$_{(ii)}$]: d_2 rejects d_1 because certain background assumptions for the felicitous use of d_1 are not met, or because the proposition associated with d_1 and d_2 cannot both be true in the evaluation world.

(Repp 2016: 278-279)

Generally, the so-called *parallel contrast* (SIMILAR in Repp 2016 and contrast due to similarity plus dissimilarity in Umbach 2004) is not considered a contrastive discourse relation, unlike other types of contrast such as the one found in a correction. One of the basic arguments for this claim is that there must be some kind of opposition between the alternatives, which is not found in parallel constructions like (6) above, in which both segments make the same contribution to the QUD (Repp 2016). However, at the level of alternatives they do involve contrast since the constituents are explicitly contrasting with each other.

Repp (2016) claims that contrast may be triggered either i) by the alternativeness of constituents, ii) by the discourse relations or iii) by both.

Mayol (2010) also explores contrast in discourse through the analysis of overt subject pronouns (OSP) in null subject Romance languages. She takes into account two types of contrast: i) double contrast, where two different pronouns occupy subject position and predicate two opposite actions or states, ii) implicit contrast, where there is an implicit contrast between the antecedent of the pronoun and another entity, and iii) weak contrast, where the sender ignores or does not want to commit him/herself to the truth of a predicate of anyone else than the antecedent of the OSP.

Table 4.1 below summarizes the different theories of contrast categorization presented in this section.

	IS level	DS level
Molnár (2002)	Open set (FOCUS OPERATOR & I-CONTRAST)	Closed set (CONTRAST & LD-CONTRAST)
Umbach (2004)	Contrast due to similarity plus dissimilarity Contrast due to exclusion	CONTRAST CORRECTION
Mayol (2010)		Double contrast Implicit contrast Weak contrast
Repp (2016)	Expl.Alt Explt.Altset Impl.Altset	Smooth discourses (Q-A & SIMILAR) OPPOSE CORRECTION (CORR)

Table 4.1. Summary of contrast categorizations.

4.1.3 Degree and marking

Regarding their marking, contrast types are often marked by (morpho)syntactic and/or prosodic strategies. Repp (2016) argues that different degrees of contrast should correlate with the application of additional or different grammatical means. The marking of the different types of contrast and their combinations depends on the specificities of the grammar of each language, as shown in the following hypothesis.

Hypothesis about the role of contrast in grammar (C-Gram)

Contrast is a grammatically relevant notion in the grammar of a language *L* if in discourses consisting of two discourse segments d_1 and d_2 *L* uses grammatical means to mark d_2 in the following way:

- A constituent that is a candidate for being a contrastive constituent in *C-Const* is marked differently from its own. The constituent is marked by the same means for all discourse relations in *C-DRel*.

= contrast based on type of alternatives

If *L* marks all the discourse types in *C-DRel* for all contrastive constituent types in *C-Const* by the same means contrast marking is F-marking in L, and 'contrast' is focus.

- The constituents that are candidates for being contrastive constituents in C-Const (a)-(c) are marked differently when they occur in $\text{OPPOSE}_{(i)}$ or $\text{CORR}_{(ii)}$ in comparison to when they occur in other discourse relations.

= contrast based on discourse relations

Contrast is a gradable notion if there are differences in the marking of $\text{OPPOSE}_{(i)}$ or $\text{CORR}_{(ii)}$.

(Repp 2016: 279)

In general, IS notions tend to occupy positions of prosodic prominence in the sentence; however, there is no one-to-one correlation between prosodic markers and IS notions; so prosodic marking is considered just a tendency, since these notions can also be left unmarked or they can be marked by different means (Féry 2007). For instance, in Catalan and Spanish narrow information focus (IF)[14] there is a high correlation between focus in situ and

[14] Narrow focus here is understood as involving only one constituent in the sentence (subject, object or verb). It contrasts with broad focus that involves a VP or a whole sentence.

rising intonational patterns, while falling intonational patterns seem to be associated with dislocation of the non-focal material and fronting (Vanrell & Soriano 2013). As for CF, an increase on rising intonational patterns correlates with an increase in the use of fronting for marking the CF constituent. Vanrell & Soriano (2013) propose that for broad focus declarative sentences in Catalan and Spanish there is a tendency for the intonational prominence to be located in clause-final position. However, in line with Féry (2007), they claim that these correlates of prosodic patterns with IS notions are just tendencies, since in IF declaratives, the intonational prominence can also be found in clause initial position in the sentence (in Eastern Catalan and Basque Spanish), and also in situ for both IF and CF declaratives.

As for SL markers in most of the SLs analysed up to date there are some common specific contrast markers: body leans and the use of opposite sides of space (Wilbur & Patschke 1998, van der Kooij et al. 2006, Kimmelman 2014, among others). These markers are found with both focus and topics, as shown in example (11) (see section 2.2.2 for a more extended presentation of contrast markers in SLs).

(11) left_bl right_bl
[CAT]$_T$ [BITE BOY]$_F$. IX [DOG]$_T$ [BITE GIRL]$_F$. [RSL]
'The cat bites a boy. The dog bites a girl.'
(adapted from Kimmelman 2014: 125)

However, as Kimmelman & Pfau (2021) point out, for some SLs it has been argued that contrastive and non-contrastive focus can be marked by the same manual and non-manual markers (Crasborn & van der Kooij 2013, Kimmelman 2014, Herrmann 2015). They argue that there is a difference of degree, so contrast is more likely to be a subtype of focus rather than an orthogonal category.

Kimmelman & Pfau (2021) also state that it is not clear whether this type of marking can be applied when more than two alternatives are contrasted (cf. Kimmelman 2014). In section 4.2 I show that LSC can use body leans and location in signing space to express contrast also when more than two alternatives are contrasted in the same sentence. Another question that is often posed is whether this specific marking found in SLs can be used to provide support for the notion of contrast as an independent category in spoken languages, since this marking is modality-specific. This issue is a much more challenging one, but I will try to shed some light on it in the following sections.

4.2 Contrast in LSC

Most studies on IS notions in SLs have assumed that contrast is a feature that appears in some types of focus and topic constituents, and not an independent category in IS. Following Vallduví & Vilkuna (1998) and Molnár (2009) I take a different approach and analyse the notion of contrast in LSC as an independent notion that works orthogonally to focus and topic and entails different types.

In line with previous research on contrast in SLs (cf. Crasborn & van der Kooij 2013, Kimmelman 2014), contrast in LSC is mainly expressed through a combination of prosodic and morphophonological markers: left-right body leans (bl) and head tilts (ht), and the use of the opposite sides of signing space (cf. Barberà 2015, Navarrete-González 2016, 2019, 2021, Zorzi 2018).

This combination of markers may spread over different types of constituents. Example (12) 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 signing space.

(12) left sp right sp
left bl right bl
re
RAQUEL PERSON [INTERPRETER]$_F$ ALSO [LINGUIST]$_F$.
'Raquel is an interpreter and a linguist.'

By contrast, (13) 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.

left sp right sp
left bl right bl
re re

(13) [GIORGIA]$_T$ [LINGUIST]$_F$ [RAQUEL]$_T$ [INTERPRETER]$_F$.
'Giorgia is a linguist and/but Raquel is an interpreter.'
(Navarrete-González 2019: 32)

In (13) above, the topic and the focus of the contrasted sentences maintain their own markers, which overlap with the contrast markers described before. The topics GIORGIA and RAQUEL are marked with eyebrow raise, and the foci LINGUIST and INTERPRETER occur in clause-final position. On top of these markers, a leftward body lean spreads over the conjunct GIORGIA LINGUIST, which is articulated on the left side of signing space, and a rightward body lean spreads over the conjunct RAQUEL INTERPRETER, which is articulated on the right side of signing space.

Until now we have seen that contrast in LSC is expressed with this combination of markers, which overlap with other IS notions: topic and focus. However, some questions arise, for which this chapter proposes some answers: is it always the case that these markers express a contrastive interpretation? Is there a one-to-one correlation between this combination of markers and the interpretation of contrast? Are these NMMs marking contrast at the level of alternatives or at the DS level? Are additional markers used to express different degrees of contrast?

Mayol & Barberà (2018) analysed contrast in fully specified referring expressions (noun phrases (NPs) and bare nouns (BNs))

and underspecified referring expressions (pronouns and entity classifiers) in both spoken Catalan and LSC through corpus observation. They found that in LSC the use of space was not that significant when the contrast was implicit[15]: space was used with pronouns, but not with BNs, which was the most common strategy found in the data they analysed.

In the following section I show that different types of contrast correlate with additional prosodic NMMs that trigger specific semantic interpretations. Additional prosodic markers are found to express additional meaning components like exclusion, exhaustivity or violation of expectations that combine with the marking of similarity plus dissimilarity to express other discourse relations like, for instance, a correction. I also show that there are some phonological and morphological restrictions that can affect (and change) the realization of these markers, giving rise to other marking strategies for the expression of contrast.

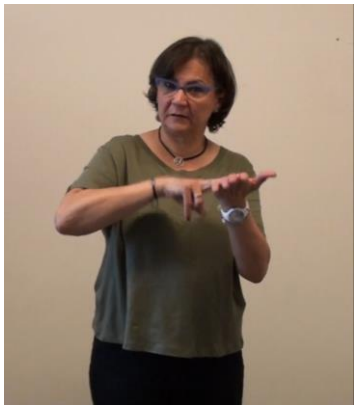
4.2.1 The marking of three contrast types in LSC

Based on Kimmelman's (2014) classification for focus types, three different types of contrast are analysed for LSC: i) *parallel contrast*, ii) *selective contrast*, and iii) *corrective contrast*, each of which involves a different degree of contrastiveness.

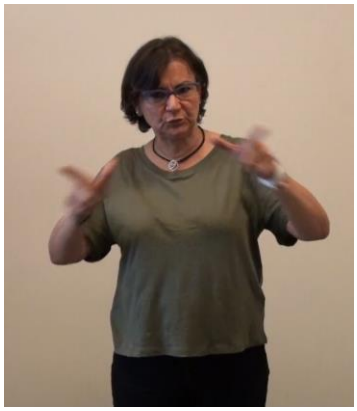
[15] The two contrasting alternatives are not explicit in the same sentence, so there is an implicit contrast between an entity and the antecedent of a pronoun.

4.2.1.1. Parallel contrast

Parallel contrast introduces parallel alternatives that belong to the same set of alternatives. Alternatives may be syntactically symmetric or asymmetric but need to be semantically parallel. As shown before, the most common strategy for the expression of parallel contrast is the combination of body leans and head tilts from left to right, and the use of the opposite sides of signing space (Figure 4.1) to place the contrasted referents, as illustrated in examples (14) and (15).



INTERPRETER



LINGUIST

Figure 4.1. Parallel contrast markers.

left sp right sp
left bl right bl
re

(14) [RAQUEL PERSON]$_T$ [INTERPRETER]$_F$ ALSO [LINGUIST]$_F$.
‘Raquel is an interpreter and a linguist.’

left sp right sp
left_bl right_bl
re re

(15) [GIORGIA]$_T$ [LINGUIST]$_F$ [RAQUEL]$_T$ [INTERPRETER]$_F$.
'Giorgia is a linguist and/but Raquel is an interpreter.'

Another strategy commonly used in LSC for the expression of this type of contrast is the lexical marker LIST. This sign is typically used in enumerations, when more than two alternatives are explicitly contrasted, as shown in example (16). The sign LIST is realized locating the contrasted items on the fingers of the non-dominant hand of the signer (Figure 4.2).

Figure 4.2. Sign LIST.

(16) 'What did you buy at the supermarket?'
LIST-1 POTATO, LIST-2 EGGPLANT, LIST-3 TOMATO, LIST-4 FISH, LIST-5 MEAT, ETC.
'Potatoes, eggplants, tomatoes, fish, meat, and other things.'

Even though this marking strategy is preferred in these contexts, this sign is optional. In the absence of this marker the same content is expressed through left-right body leans and the use of the opposite sides of signing space, as shown in (17).

(17) 'What did you buy at the supermarket?'

left sp right sp left sp right sp left sp
left bl right bl left bl right bl left bl
POTATO, EGGPLANT, TOMATO THEN FISH, MEAT, ETC.
'Potatoes, eggplants, tomatoes, fish, meat, and other things.'

It is also possible to combine both strategies. In (18) left and right body leans are combined with the sign LIST triggering a more emphatic prosody. There is not a clear pattern that tells us when it is more suitable to use the combination. Since it emphasizes that there is a contrast, it rather seems a preference of the signer that wants to be as clear as possible in her explanation.

left bl right bl left bl
(18) LIST-1 CANDY, LIST-2 MONEY, LIST-3 TEDDY BEAR […].
'Candy, money, a teddy bear.'

As we have seen in previous examples and contrary to what has been claimed for other SLs (see Kimmelman 2014 & Kimmelman & Pfau 2021), in LSC more than two alternatives may be contrasted using opposite sides of signing space. Each alternative is placed either on the left side of space or on the right side of space

alternatively, as shown in examples (17) and (18). Changing the location in space and the direction of the body lean when shifting from one alternative to another automatically evokes a parallel contrastive interpretation. It signals that we are dealing with different alternatives that belong to the same set. The location itself is not relevant, since it may be repeated; instead, it is the shift what is actually marking the contrastive interpretation. It is possible thus to use more than once the left side of space for locating more than one contrastive alternative in the same sentence, as long as there are more than two alternatives contrasting and the previous alternative is not placed on the same side. This is possible since the use of space here is not referential. In fact, that would explain why when the alternatives are body-anchored, using locations in signing space is not possible so body leans alone can fulfil this function and evoke a contrastive interpretation (see Barberà 2015 for a thorough description of the use of signing space in LSC).

Parallel contrast may also be expressed through a strategy called dominance reversal (cf. Kimmelman 2014): the signer activates his/her non-dominant hand to express simultaneously two referents that are being contrasted. In (19) PUNCH and SLAP are explicit alternatives that belong to the same set. PUNCH is expressed with the dominant hand, and SLAP is expressed with the non-dominant hand.

(19) Context: The other day I saw a fight in the Street. There were two men arguing and, in the end…

dh: FIGHT ONE PUNCH

ndh: SLAP.

'They fought and one of them punched and slapped the other.'

Unlike what has been claimed for NGT (Kimmelman 2014), the use of this strategy in LSC seems to respond to some morphophonological restrictions in the realization of the combination of markers, which are further explained in section 4.2.2.

Finally, in this type of contrast the use of additive/scalar focus particles is common in LSC. In (20) and (21) below the same combination of NMMs is again displayed over the contrasted focussed items, and the additive focus particle ALSO is used to introduce the second alternative.

left sp right sp
left bl right bl
re

(20) [RAQUEL PERSON]$_T$ [INTERPRETER]$_F$ **ALSO** [LINGUIST]$_F$.
'Raquel is an interpreter and also a linguist.'

left sp right sp
left bl right bl

(21) LAW IX [ENGLISH]$_F$ **ALSO** [CATALAN]$_F$.
'[You can consult] the law in English and also in Catalan.'

Mayol & Barberà (2018) claim that implicit contrast in LSC may be marked using an additive scalar focus particle, which is primarily marked by the combination of the sign ALSO with specific NMMs: raised eyebrows, eyes wide open and sometimes a head nod (22) (cf. Herrmann 2013 for a similar analysis of additive scalar focus particles in DGS).

(22) BOY ANIMAL DEER CL(8) 'animal running'/CL(2) 'two-legged entity on top' FAST.

hn,re,we

ALSO DOG CL(8) 'animal running' FAST.

'The deer was running very fast with the boy lying on his head. Even the dog was running very fast.'

(Mayol & Barberà 2018: 443)

In our data, additive scalar focus particles can also be expressed through specific lexical signs that are uttered in combination with NMMs similar to the ones described by Mayol & Barberà (2018). Apart from the sign ALSO (22, 23a), the sign UNTIL (23b) is present in many examples, in combination with raised eyebrows, eyes wide open, a head thrust, and the mouthing of the corresponding Spanish word *hasta* [hasta], which means 'even', expressing the additive scalar meaning. Moreover, the same interpretation may be expressed without an overt lexical sign (23c). In this case the NMMs encoding the scalar meaning spread over the focused item, and the additive meaning is inferred. In combination with the NMMs for the scalar meaning, all examples (23a-c) display the

typical markers for the expression of contrast (left-right body leans and the use of space).

(23) Context: You organised a party. You invited your group of friends, but you didn't expect Anna to come, since she never goes to parties.
'The party was so successful. Even Anna showed up!'

left sp right sp+ht
re,we,hthr,mth,

a. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. ANNA COME ALSO.

left sp right sp+ht
re,we,hthr, mth

b. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. UNTIL ANNA COME

lef sp right sp+ht
re,we,hthr, mth

c. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. ANNA COME

In section 4.2.3.3 I show that the head thrust found in the expression of additive scalar focus particles is connected to unexpectedness, since it can also be found in instances of corrective contrast. Moreover, in chapter 5 a more thorough description and analysis of focus particles in LSC is presented.

4.2.1.2. Selective contrast

Selective contrast is defined here as the type of contrast that provides an alternative that has been selected from a set of two or more overt alternatives that were previously introduced in the discourse (cf. Kimmelman 2014). In LSC selective contrast is expressed again through body leans and/or head tilts from left to right in combination with the use of the opposite sides of the signing space. In this type of contrast, however, an additional marker is found in the data analysed: a repeated head nod is found when the selected alternative is uttered, in combination with the rest of the markers mentioned before (24).

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

right sp
right bl+ht+hn
BIKE RIDE.
'Riding a bike.'

Selection may be also expressed through other syntactic strategies like fronting or clefting. In (25a) the selected alternative is fronted, and again a repeated head nod occurs in the selected alternative. In (25b) the signer uses the same strategy with fronting of the selected alternative. In this sentence, though, the sign SAME, which has been claimed to be a relative marker in LSC (Mosella 2012), is added in what seems to be an *it*-cleft construction (cf. Branchini 2014).

(25) *Context*: Your friend is not sure if Mary ate a pizza or a sandwich. You tell him that it was a pizza.

forward bl
hn
re

a. PIZZA MARY EAT.
'*Pizza*, Mary ate.'

hn
re

b. PIZZA IX SAME MARY EAT.
'It was a *pizza* that Mary ate.'

In examples (25a-b) no body leans from left to right are displayed since the structures (fronting and clefting) are serving the purpose of contrasting the referents. One reasonable explanation is that only one of the conjuncts is expressed and therefore there is no need to perform these markers. In (24) the basic word order is preserved so this marking is added to highlight the alternative selected.

4.2.1.3. Corrective contrast

Corrective contrast substitutes an alternative that is considered false by the interlocutor. Again, the most frequent strategy for expressing this type of contrast in LSC is the combination of body leans and/or head tilts from left to right and the use of the opposite sides of space in combination with a head movement: a strong head thrust that emphasizes the correct alternative as shown in example (26).

hthr
left sp right sp
left bl+ht right_bl+ht

(26) NO MARY PIZZA-EAT NOTHING, OTHER BURGER.
'Mary didn't eat a pizza, but a burger.'

Interestingly, unlike examples (25a-b) above, and contrary to what has been claimed for NGT (Kimmelman, 2014), the combination of markers mentioned before appears also in LSC in some examples of corrective contrast where the signer is uttering a correction with a fragment answer. In (27) below, signer B corrects signer A with a fragment answer which is expressed with a right body lean towards the right side of space. Since basic word order is preserved some strategy might be needed to highlight the correction. This strategy could be also due to the fact that two signers can make a shared use of signing space (Emmorey 2002, Perniss 2007). In the elicitation of this sentence, signer A uttered the sentence with the false alternative towards her right side of space with a right head tilt, so it is also possible that signer B made use of the opposite side to express the contrast with the previous utterance.

(27)

A: 'The sea is yellow.'

hthr hthr
right sp
right bl+ht

B: NO, SEA SPECIFIC BLUE.
'No, the sea is blue.'

In LSC forward-backward body leans can be found in combination with left-right body leans (cf. Crasborn & van der Kooij 2013 for similar results in NGT). The contrast between the correction and the corrected element is expressed with a forward-backward body lean and, if the correction includes more than one element, a left-right body lean expresses the (parallel) contrast between the elements within that conjunct. In example (28), the sign PIZZA is expressed with a leftward body lean, the sign ICE CREAM is expressed with a body lean that moves from the left to the centre, and the sign SALAD is expressed with a rightward body lean. Moreover, there is a backward lean spread over the first part of the sentence that is expressing denial of the false alternative that is being corrected (‘Mary didn’t eat only pizza’), and a forward lean is spreading over the three contrasted alternatives expressing affirmation of the corrected alternative (‘she ate pizza, ice cream and salad’). This is another example that LSC can use sideward body leans and locations in space to contrast more than two alternatives.

		re		
	backward_bl		forward_bl	
		left sp	central sp	right sp
		left bl	central bl	right bl

(28) MARY PIZZA EAT ONLY NO, PIZZA, ICE CREAM, SALAD.

‘Mary didn’t eat only pizza, (she ate) pizza, ice cream and salad.’

In sum, all types of contrast are expressed with the same combination of markers: body leans and/or head tilts from left to

right in combination with the use of the opposite sides of signing space. However, in selective contrast and corrective contrast (and also in some examples of parallel contrast with 'even'), additional head movements are found, which trigger additional interpretations.

4.2.2 Restrictions on contrast markers

In the previous section we have seen the paradigm of LSC markers for three different types of contrast. We have established that the common marking for any type of contrast in LSC is a combination of left-right body leans and/or head tilts plus the use of the opposite sides of signing space. However, even though a high percentage of the data elicited was marked with this combination of markers, some counterexamples were elicited that made us reflect on the possible factors that could override these markers. Quer (2016) claims that there is no one-to-one correlation between NMMs and meaning. Based on spoken language research, Féry (2007) also argues that there is no one-to-one correlation between a prosodic marker and an IS notion/interpretation, and prosody may have a limited amount of strategies. Vallduví & Vilkuna (1998) point out that there might be competition between strategies fulfilling different functions:

> The structural resources of natural language of syntactic, prosodic, and morphological nature are clearly limited. Interpretive categories, pertaining to different interpretive domains (argument structure, grammatical role, information structure, referential status, temporal/aspectual structure,

> quantificational relations, illocution, discourse/text relations) correlate with these structural resources to form meaning –structure pairs. But, given the scarcity of structural resources, the mapping cannot yield a neat one-to-one pattern. Conflicts arise when interpretive categories compete for the same structural resource.
>
> (Vallduví & Vilkuna, 1998: 102)

In this section, I try to elucidate if prosody in LSC has a limited amount of strategies in some contexts, which could trigger the modification of the markers for contrast. I analyse whether in LSC prosodic markers of contrast could be partially or completely modified due to other predominating factors. Moreover, I describe alternative strategies that signers use in order to express contrast when these clashes arise. Restrictions may be categorized into three different types: phonological, morphological, and semantic.

4.2.2.1. Phonological restrictions

Body-anchoredness

In LSC some signs body-anchored to a location on the body of the signer. In these cases there is a phonological blocking to use space in front of the signer. Therefore, contrast cannot be expressed by using the opposite sides of signing space in the strict sense. The result is that the combination of markers established for contrast is reduced to left-right body leans and/or head tilts, which are directed towards locations in space in an abstract way, as illustrated in example (29).

right sp left sp
right bl+ht left bl+ht

(29) GEMMA GO PARIS RAQUEL IX NEW-YORK.
'Gemma went to Paris and Raquel to New York.'

In (29) the signs GEMMA and RAQUEL are body-anchored, so they only co-occur with left and right body leans, and not through the association of the signs in signing space. In contrast, NEW-YORK and PARIS are marked through left-right body leans and head tilts plus articulation of the signs on opposite sides of signing space.

4.2.2.2. Morphological restrictions

NMMs in LSC are not only used for the expression of intonation. They can also have other grammatical functions, such as morphological and syntactic functions (Pfau & Quer 2010). Our hypothesis is that, since the meaning added through morphological encoding cannot be erased, when there is a clash between morphological markers and prosodic markers, the latter ones may get overridden.

Use of space for other purposes

Space in SLs is used for the expression of many different grammatical functions (Barberà 2007, 2015). When the expression of contrast overlaps with the need of expressing some other function that is typically encoded through the use of different locations in signing space, the use of the opposite sides of space for marking

contrast gets overridden. For instance, contrast in LSC is used to locate referents for agreement purposes (Barberà 2007, 2015). If a signer wants to contrast two eventualities that happen to involve the same referent, who has been previously located in a specific part of signing space (locus), both eventualities will be located in this specific locus, since they are related to the same referent. Due to the impossibility of using the opposite sides of signing space for expressing contrast between the two actions, the signer may employ other strategies that ensure a contrastive interpretation. In example (19), repeated as (30) below, the actions 'to slap' and 'to punch' are directed to the same referent, which is located in a specific locus. In this case, the signer establishes a specific locus for the referent, and then articulates the signs for both actions in this locus. In order to express the contrast between the two actions the signer activates his non-dominant hand for articulating the sign SLAP.

(30) Context: The other day I saw a fight in the street. There were two men arguing and, in the end…

dh: FIGHT ONE PUNCH
ndh: SLAP.
'They fought and one of them punched and slapped the other.'

Dominance reversal has been already described for other SLs such as RSL and NGT (cf. Kimmelman 2014). I argue that, at least in the set of data elicited for this dissertation, this strategy seems to be

used in LSC only if there is any phonological restriction that blocks the appearance of the combination of markers described at the beginning of this chapter.

Time marking

In LSC time is conceptualized as a timeline that starts behind the shoulder of the signer and spreads over the front part of the signer. The past is conceptualized either behind or at the shoulder (depending on how far in time the event is), and the future is conceptualized in front of the signer (Quer et al. 2005). When two chronological events are contrasted –one happening in the past time, and the other one in the future or the present time– the timeline is used to express the contrast between those events. Therefore, left-right body leans and use of space, which seem to be more commonly used in the expression of contrasted referents, may get overridden by a backward-forward body lean associated to the timeline.

backward bl forward bl

(31) NO BA FINISH NO PAST YEAR IX SPECIFIC MA FINISH.

'I didn't finish the BA this year (it was in the past). This year I finished the MA.'

Example (31), however, is misleading, since in some other examples involving contrast and time relations, this restriction seems not to be a problem for the expression of left-right body leans. In (32) below, left-right body leans express the contrast

between the two conjuncts as expected, and a backward body lean spreads over YEAR-PAST expressing the past time.

backward bl+ht

right sp left sp

bl+ht right bl left

(32) YEAR-PAST IX_1 HOLIDAYS CANARIAS YEAR IX STAY BADALONA.

'Last year I went on holidays to the Canary Islands. This year I'll stay in Badalona.'

The difference between examples (31) and (32) is that (31) is a correction, and (32) is an example of parallel contrast. The forward-backward body lean in (31) thus might be expressing denial and affirmation (as predicted by Wilbur & Patschke 1998, and Crasborn & van der Kooij 2013) at the same time that is expressing a contrastive time relation between the events that happened in the past and in the present time. Instead, the backward body lean found in (32) is lexically specified by the compound YEAR-PAST and is not clearly contributing to the expression of contrast between the two alternatives, it is just expressing past time since past time in our culture is conceptualized metaphorically behind our bodies. Of course, the origin of this conceptualization in space of past and future located behind and/or in front of our bodies is contrastive in nature in both spoken and sign languages, but it is not the grammatical marker I am describing here.

4.2.2.3. Semantic restrictions

Some lexical specifications of the signs of a sign language may be determined by the semantics of a verb or a noun. For instance, lexically specified body movements are attested in signs that involve a semantics of inclusion or exclusion. As mentioned in section 2.2 forward body leans have been associated with inclusion and affirmation, while backward leans have been associated with exclusion and negation (Wilbur & Patschke 1998, van der Kooij, Crasborn & Emmerik 2006, Pfau & Quer 2010). In ASL, for instance, the signs AVOID and REJECT involve a backward body lean while the signs INVOLVE and ENCOURAGE involve a forward body lean (Wilbur & Patschke 1998).

I took these claims as a baseline to test if LSC follows the same patterns, and the lexical level specifications affect or change the markers of contrast that work at a suprasegmental level. In example (33) below, the sign PARTICIPATE involves inclusion and the opposite STOP-PARTICIPATING involves exclusion.

(33) Context: You had an argument with the president of the Sports Committee of your Deaf association, and you decided that you won't participate in the organization of the activities anymore. You tell your friend so.

left bl central bl

IX_1 ALWAYS UNTIL-NOW ACTIVITIES DIFFERENT+++ IX_1

central bl right bl

neg

PARTICIPATE+++ NOW IX_1 STOP-PARTICIPATION.

‘Until now, I had always participated in the (organization of the) different activities. Now I stopped participating.’ 

We would expect that these specific lexical semantic features of inclusion and exclusion might influence the realization of the contrasted signs, and that they would be uttered with forward and backward body leans instead of left and right body leans (or at least with a combination of both). Surprisingly, the signs PARTICIPATE and STOP-PARTICIPATING are only uttered with left and right body leans, but the inclusive-exclusive meaning that we could expect to find specified as a lexical feature is not found. We could arrive at the conclusion that this premise does not hold for LSC; however, the set of data used in this part is not very extensive, thus a more exhaustive study of verbs involving these features is needed in order to confirm the results and broaden the picture on this issue.

In sum, out of the three different contexts that were tested, only phonological and morphological restrictions seem to affect or modify the combination of markers found for the expression of contrast in LSC.

4.2.3 The interpretation of contrast in LSC

Each of the contrast types described in section 4.2.1 share a basic meaning: they all involve contrast due to similarity plus dissimilarity. However, we can distinguish different types of contrast in which additional pragmatic interpretations are triggered by some NMMs (head nods and head thrusts). Based on Umbach

(2004) and Repp (2016), the interpretation of the different contrast types is explained in the following subsections.

4.2.3.1. Parallel contrast

Parallel contrast involves contrast due to similarity plus dissimilarity. This meaning is triggered by the combination of markers: left-right body leans and head tilts and the use of the opposite sides of signing space to localize the contrasted referents. This type of contrast would be equivalent to the discourse relation SIMILAR in Repp (2016) since the alternatives are making the same contribution to the current QUD. In some instances of parallel contrast with 'even' a counterexpectational reading is triggered by an additional head thrust.

4.2.3.2. Selective contrast

Selective contrast involves contrast due to similarity plus dissimilarity, expressed again by the combination of left-right body leans and head tilts and the use of the opposite sides of signing space, in addition to contrast due to exclusion, which is marked by the additional head nod.

4.2.3.3. Corrective contrast

Corrective contrast involves contrast due to similarity plus dissimilarity, which again is expressed through left-right body leans and head tilts, and the use of opposite sides of signing space. It also involves contrast due to exclusion, plus a conflict with the

expectations of the interlocutor, which is signalled by the additional head thrust.

The additional head nod flags an exhaustive reading in selective contrast; and the additional head thrust is triggering an exhaustive and counterexpectational reading in corrective contrast. Mayol & Barberà (2018) argue that the NMMs found for the expression of 'even' (eyebrow raise, eyes wide open, and head nod) are marking a counterexpectational meaning. In this thesis, the counterexpectational meaning is not only found in examples of corrective contrast, but also in some examples of parallel contrast that involve unexpectedness through additive scalar focus particles. Thus, I suggest that the head thrust is responsible for the marking of the counterexpectational interpretation independently of the type of contrast.

Moreover, repeated head nods have been attested to be co-articulated with manual signs to express the positive polarity of a clause. Thus, this NMM has also been connected to verum focus in other SLs (cf. Geraci 2005, Pfau & Quer 2010). Affirmation has also been claimed to be expressed through forward leans in ASL and NGT (Wilbur & Patschke 1998, Crasborn & van der Kooij 2013). In LSC the repeated head nod seems to have a clear connexion to affirmation and exhaustiveness (see section 3.5.3), but it is not always the case that forward leans appear together with head nods to express the same meaning, and more importantly, forward leans are not always marking affirmation in LSC since they can fulfil other functions (section 4.2.2.2). I claim thus that head

nods and forward leans in LSC are independent markers that may appear together.

Regarding the perception of the prosody in these constructions, it seems that the additional head markers in both selective and corrective contrast result in a stronger or more intense prosody in more contrastively marked contexts (Figure 4.3). I argue that the fact that all types of contrast share the same combination of markers in most of the examples provides evidence that we are dealing with a unique notion of contrast with different degrees of contrastiveness. This is in line with Repp (2016), who claims that different types/degrees of contrast should correlate with different markers. Repp points out that the notion of contrast should be considered gradable if there are differences between the discourse relations CORRECTION and OPPOSE. In our set of data selective and corrective contrast are clearly marked by different grammatical means.

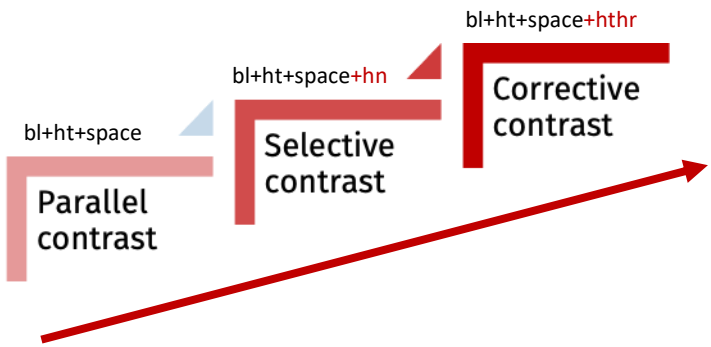


Figure 4.3. Prosodic marking of the different types of contrast

Moreover, all contrast types share a common feature: they involve semantic parallelism between the elements that are being contrasted

in the sentence (contrast due to similarity plus dissimilarity in Umbach's terms). I understand by semantic parallelism the fact that the contrasted alternatives belong to the same set and are semantically comparable to each other. It can be the case that two alternatives do not involve syntactic parallelism, but they can be semantically parallel. The semantic parallelism between the alternatives in LSC is expressed by the basic combination of markers that is repeated in each of the contrast types presented before (parallel, selective and corrective).

All in all, the notion of contrast seems to be compositional at the semantic level, since there are different meanings that combine to form different discourse relations (selection and correction) expressed though different combinations of markers. However, the prosody seems to be perceived as gradient: the movement of a head thrust is articulated with more tension in the neck muscles than the repeated head nod, so this tension seems to be adding intensity to the contrasted alternative.[16] These results are in line with Dachkovsky & Sandler (2009) and Sandler (2012) proposal that prosodic NMMs (prosody) trigger regular pragmatic meanings, and that they can be componential since they can combine to express a more complex meaning.

[16] Manual markers, such as duration of the sign, and repetition of the movement, seem to also contribute to this gradient perception adding a more intense stress in more contrastively marked contexts, like correction (cf. Navarrete-González 2016).

4.3 Further evidence from coordination and subordination

This section is based in joint work with Giorgia Zorzi (Navarrete-González & Zorzi 2019) and contributes to give further evidence to the claims posed in this thesis by analysing the presence of contrast in different coordinate and subordinate structures. Moreover, it provides new data on contrast in subordination in SLs, an area that is mostly unexplored in SL pragmatics.

4.3.1 Contrast in coordination

Coordination is here defined as the combination of two or more elements to form a larger unit in which the elements belong to the same set of alternatives and answer the same previous QUD (in line with Umbach 2004, Hartmann 2015 and Repp 2016). According to this definition the syntactic categories of the coordinated conjuncts may not be syntactically symmetric but intuitively they need to be semantically symmetric. Therefore, in order to look at contrast in coordination we need to take into account at least two conditions:

i) the presence of syntactic symmetry or asymmetry between the clauses and
ii) the presence or absence of semantic parallelism between the elements.

According to Nonato (2014), the presence of (syntactic) symmetry or asymmetry between the clauses is defined considering the (a)temporal relation between the conjuncts. In symmetric

coordination conjuncts can be swapped without affecting the semantics of the sentence (Nonato 2014). As pointed out in Zorzi (2018) symmetric coordination may be either atemporal or simultaneous. In atemporal symmetric coordination there is no temporal simultaneity in the events presented in both conjuncts (34). In simultaneous symmetric coordination instead both conjuncts include events that are taking place at the same time (35).

(34) Matthew dates a veterinarian and hopes to date a surgeon.
= Matthew hopes to date a surgeon and dates a veterinarian.

(Nonato 2014: 5, as cited in Zorzi 2018)

(35) At noon, I was eating at the park and Mary was sitting next to me.

(Mauri 2008: 84, as cited in Zorzi 2018)

In asymmetric coordination, instead, there is a sequential temporal relation between the coordinated conjuncts so that if they are swapped the meaning changes (Nonato 2014). In (36) below swapping the conjuncts results in an odd sentence.

(36) You can use this magic herb and get cured of cancer.
≠You can get cured of cancer and use this magic herb.

(Nonato 2014: 5, as cited in Zorzi 2018)

The second condition to be analysed is the presence or absence of semantic parallelism between the elements. Semantic parallelism

here is understood as being present when the referents belong to the same set of alternatives. It is analogous to Umbach's similarity plus dissimilarity condition in the sense that parallel elements are similar –they share a basic meaning– and dissimilar –they have independent meanings.

In this analysis, syntactic parallelism is not considered since, as we will see, it does not necessarily determine the presence of contrast (see Goodall 1987; Progovac 1998; Hartmann 2000; Legeland et al. 2018 among many others for work related to syntactic parallelism).

Assuming that contrast appears when there is semantic parallelism between the elements, whenever contrast is present in a coordinated sentence in LSC we expect to find the same combination of markers that were presented in previous sections: left-right body leans and/or head tilts and the use of opposite sides of signing space, as illustrated in Table 4.2 below.

Symmetric coordination	+ Parallelism	Contrast
	- Parallelism	No contrast
Asymmetric coordination	+ Parallelism	Contrast
	- Parallelism	No contrast

Table 4.2. Expected presence of contrast (markers) in coordination

According to Zorzi (2018) coordination in LSC is mainly expressed asyndentically, using the following NMMs: head tilts (ht), body leans (bl) and/or body shifts (bs), and also through the use of contralateral (cl) and ipsilateral (ip) sides of the space. It is also possible to find conjunctions like OR, BUT, and additive focus

particles like ALSO in coordinated structures, as illustrated in example (37).

bs cl	hl+bs ip	hl ip
sp cl	sp ip	re

(37) HOME MARINA GO ALSO TICKET CINEMA BUY PLUS-Q SON SCHOOL

hl ip
sp cl

BRING.

'Marina went home and she bought the ticket for the cinema and she brought her son to school.'

(adapted from Zorzi 2018: 120)

In this section we will have a look at contrast in conjunctive and adversative coordination considering:

i) presence of symmetry or asymmetry between the clauses

ii) the presence or absence of semantic parallelism between the elements.

4.3.1.1. Contrast in conjunctive coordination

Conjunctive coordination in LSC can be symmetric or asymmetric and may involve (or not) parallelism between the conjuncts. In this subsection we will look at each possible combination and analyse the NMMs found in each one of them.

First, we will have a look at conjunctive asymmetric coordination with parallelism between the elements. Example (38) is a case of conjunctive asymmetric coordination (that presents sequentiality) with parallelism between the elements. In this example the second conjunct is clearly marked with a right body lean and the first one remains centred. Since parallelism is indicating the presence of contrast between the alternatives each conjunct is articulated in a different part of signing space (central vs. right).

(38) MARINA SANDWICH PREPARE JORDI CL: 'pile'.
cent sp right sp
'Marina prepared the sandwiches and Jordi piled them.'
(adapted from Zorzi 2018: 145)

In conjunctive asymmetric coordination without parallelism between the elements there is no contrast between the alternatives, so we would not expect the alternatives to be placed in different sides of signing space (at least not with contrastive function). Example (39) is an example of conjunctive asymmetric coordination without parallelism in which both conjuncts are articulated with a left body lean in the left side of space.

(39) SUN STRONG IX_1 CL: 'person falling'.
left bl left bl
left sp left sp
'The sun was strong and I fainted.'
(adapted from Zorzi 2018: 147)

Asymmetric coordination	+ Parallelism	NMMs marking contrast
	- Parallelism	No contrast

Table 4.3. Contrast markers in asymmetric conjunctive coordination

Moving on to conjunctive symmetric coordination with parallelism between the elements we find again that the contrasted alternatives are located in different sides of signing space (central vs. right or left vs. right), as shown in example (40).

cent left ht+bl right ht+bl

(40) JORDI BOOK RECIPE READ GIORGIA COOK.
'Jordi was reading a recipe and Giorgia was cooking.'

By contrast, in conjunctive symmetric coordination without parallelism between the elements no contrast markers are found. Example (41) is an example of conjunctive symmetric coordination without parallelism in which both conjuncts are articulated in the central part of signing space.

cent

(41) JORDI RUN SUN.
'Jordi was running and it was sunny.'

Symmetric coordination	+ Parallelism	NMMs marking contrast
	- Parallelism	No contrast markers

Table 4.4. Contrast markers in symmetric conjunctive coordination

Having a look at gapping, a structure that by default involves parallelism between the elements, we can see the same pattern: the same combination of markers for contrast is displayed, as shown in example (42). Again, in this example the first conjunct is partially centred and the second one is completely uttered towards the right side of space.

cent bl left bl right bl

(42) [[ROSA]$_{T}$ [TEA T-E]$_{F}$ PAY]$_{cent}$[[JORDI]$_{T}$ [CROISSANT]$_{F}$ ~~PAY~~.]$_{right}$

'Rosa paid for a tea and Jordi for a croissant.'

In sum, whenever there is parallelism in asymmetric or symmetric conjunctive coordination the same combination of markers for the expression contrast is found.

4.3.1.2. Contrast in adversative coordination

In adversative coordination with parallelism between the elements, NMMs for contrast appear as expected. This is illustrated in example (43a). Note that in this type of coordination the conjunction BUT may be used in order to express the adversative meaning. In this case there is no need to articulate NMMs for contrast since the conjunction is already expressing the contrastive relation (43b).

(43)

left ht+bl right ht+bl

a. GIORGIA CAKE COOK HANDS GOOD JORDI CAKE ORIGINAL.

'Jordi baked a good cake, (but) Giorgia baked an original cake.'

left ht+bl right ht+bl

b. GIORGIA CAKE COOK HANDS GOOD **BUT** JORDI CAKE ORIGINAL.

'Jordi baked a good cake, but Giorgia baked an original cake.'

In adversative coordination without parallelism between the elements, like example (44), there is no marking through body leans and/or use of signing space since there are no semantically comparable alternatives. In (44) below both conjuncts are articulated in the central space.

cent

(44) RAIN BUT IX_1 STREET WALK SAME.

'It was raining but I went to walk anyway.'

Adversative coordination	+ Parallelism	NMMs marking contrast
	- Parallelism	No contrast markers

Table 4.5. Contrast markers in adversative coordination

4.3.2 Contrast in subordination

Contrast in subordination has been barely analysed in SLs. Most of the literature on contrast in subordination has been written for spoken languages (Rudolph 1996, Haegeman 2003, Izutsu 2008, among others). In order to analyse contrast in subordination in LSC the following factors were considered:

i) presence of symmetry or asymmetry between the clauses and
ii) presence or absence of semantic parallelism between the elements

Regarding the presence of symmetry or asymmetry between the clauses we will consider the semantic relation between the clauses. In symmetric subordination clauses can be swapped without affecting the semantics of the sentence like happens in temporal clauses with 'while'. In example (45) below both conjuncts can be swapped without affecting the meaning of the sentence.

(45) While Jordi was reading a recipe, Giorgia was cooking.

In asymmetric subordination swapping the clauses results in a different meaning just like happens in conditional and causal clauses, as illustrated in example (46).

(46) Rosa will buy a croissant because Jordi burned the cake.

In relation to the presence or absence of semantic parallelism between the elements just as we saw in coordinated sentences, we

expect that the presence or absence of parallelism makes a significant difference in the articulation of specific markers for the expression of contrast. Example (45) above repeated as (47) below is an example of subordination involving parallelism, and example (48) is an example of subordination without parallelism between the main clause and the subordinate clause.

(47) While Jordi was reading a recipe, Giorgia was cooking.

(48) If you love animals, you don't eat meat.

Assuming that contrast appears whenever there is parallelism between the elements, in LSC we expect the same contrast markers presented before to appear in subordinate clauses that involve parallelism. Table 4.6 below summarizes the hypothesis.

Symmetric subordination	+ Parallelism	Contrast (temporal clauses)
	- Parallelism	No contrast (temporal clauses)
Asymmetric subordination	+ Parallelism	Contrast (conditional & causal clauses)
	- Parallelism	No contrast (conditional & causal clauses)

Table 4.6. Contrast markers in subordination

4.3.2.1. Asymmetric subordination: Conditionals

In this subsection we explore conditionals with and without parallelism, to check if the behaviour of the NMMs for contrast

patterns in the same way as we saw in section 4.2 for coordinated sentences. Conditional sentences may involve semantic parallelism when each of the clauses contain alternatives that belong to a same set. Example (49) below is an example of a conditional sentence that involve parallelism between the main clause and the subordinate clause.

	right ht	left ht
	cent	right sp

(49) IF JORDI CAKE BURN ROSA CROISSANT BUY.

'If Jordi burns the cake, Rosa will buy a croissant.'

In example (49) same markers as the ones found in coordinated structures with parallelism appear. An interesting finding that is reflected in example (49) is that the different markers (NMMs and signing space) do not need to coincide in their direction. The important thing here is that they are directed towards a different location to the one used for the contrasted alternative. For instance, the head tilt in (49) is directed towards the right side of space in the main clause, whether the location of signs in signing space is the centre. Likewise in the subordinate clause the head tilt is directed towards the left side while the signs are located in the right side of signing space.

Of course not all conditional sentences involve parallelism by default. Example (50) below is an example of a conditional that does not involve parallelism between the alternatives presented in the main clause and in the subordinate clause. In this case, the

markers described along this chapter for the expression of contrast do not appear, instead, the whole sentence is articulated in a neutral position: the centre.

left bl left bl
cent

(50) IF ANIMALS LOVE MEAT EAT^NOT.
'If you love animals, you don't eat meat.'

Gapping can also be found in subordination in LSC (Zorzi 2018). Checking on gapping subordinate structures –which always involve parallelism– the same combination of markers for contrast in coordination and subordination involving parallelism is found. Example (51) below illustrates this.

right bl left bl+ht
cent right sp

(51) IF ROSA CROISSANT BUY JORDI CAKE ~~BUY.~~
'If Rosa buys a croissant, Jordi will buy a cake.'

In sum, asymmetric subordinate structures follow the same pattern that coordinate structures with respect to the use of specific markers for the expression of contrast (Table 4.7).

Asymmetric subordination	+ Parallelism	NMMs marking contrast
	- Parallelism	No NMMs marking contrast

Table 4.7. Contrast markers in asymmetric subordination

4.3.2.2. Symmetric subordination: Temporals

In this subsection we look at temporals with and without parallelism, and we also look at two different types of temporals without parallelism again to check if the markers for contrast appear and follow the same patterns we have observed before. In temporals with parallelism, like example (52) below, the same combination of markers for the expression of contrast are used, as expected.

	left ht+bl	right ht+ bl

(52) JORDI BOOK RECIPE READ GIORGIA COOK.

'Jordi was reading a recipe while Giorgia was cooking.'

As for temporals (with 'while') without parallelism we are going to analyse i) temporals in which both clauses involve durative actions: durative+durative, and ii) temporals in which one clause involve a durative action and the other a punctual action: durative+punctual. In durative+durative temporal clauses that do not involve any parallelism, markers for contrast do not appear, as expected. This is illustrated in example (54) where the whole sentence is articulated with a body lean towards the left side of space. In durative+punctual temporals same pattern arises, markers for contrast do not appear, as illustrated in example (53) where again both conjuncts are articulated with a body lean towards one side of space: the left side[17].

[17] Note that opposite sides of space are used in examples (53) and (54) to place the referents, but this is due to referential purposes and not contrastive purposes.

left ht+bl

(53) JORDI CAKE MAKE+++ PHONE CL: phone ring.

'Jordi was making a cake while the phone was ringing.'

left ht+bl

(54) JORDI CAKE MAKE+++ PHONE CL: phone ring+++.

'While Jordi was making a cake the phone rang.'

Until now we have shown that the specific combination of markers for the expression of contrast in LSC is used when there is parallelism in the structure, whether it is a coordinate structure or a subordinate structure. Also, an interesting phenomenon that can be observed is that subordinate temporals and symmetric conjunctive coordinate sentences are apparently expressed with the same form. Therefore, there is nothing that tells us that temporals are subordinate structures. Examples like (52) above can only be expressed with a coordinate structure, even though the semantics is the one of a subordinate with 'while'. The same phenomenon is found when comparing adversative coordination and concessive subordination (see Section 4.3.3). Table 4.6 below from Navarrete-González & Zorzi (2019) summarizes the findings presented until now.

		COORDINATION	**SUBORDINATION**
SYMMETRIC	**+ Parallelism** **+ Contrast NMMs**	left_ht+bl right_ht+bl JORDI BOOK RECIPE READ GIORGIA COOK 'Jordi was reading a recipe and Giorgia was cooking.'	left_ht+bl right_ht+bl JORDI BOOK RECIPE READ GIORGIA COOK 'While Jordi was reading a recipe, Giorgia was cooking.'
	- Parallelism **- Contrast NMMs**	central JORDI SLEEP QUIET OUTSIDE RAIN 'Jordi was sleeping quietly and outside it was raining.'	left_ht+bl JORDI CAKE MAKE+++ PHONE CL: phone ring 'While Jordi was making a cake the phone rang.
ASYMMETRIC	**+ Parallelism** **+ Contrast NMMs**	central right_bl MARINA SANDWICH PREPARE JORDI CL:PILE 'Marina prepared the sandwiches and Jordi piled them.'	right_ht left ht+space IF JORDI CAKE BURN ROSA CROISSANT BUY 'If Jordi burns the cake, Rosa will buy a croissant.'
	- Parallelism **- Contrast NMMs**	right_bl+ht right_bl SUN STRONG IX-1 CL:FALL 'The sun was strong and I fainted.'	left_bl left_bl IF ANIMALS LOVE MEAT EAT^NOT 'If you love animals, you don't eat meat.'

Table 4.6. Summary of coordinate and subordinate structures with and without parallelism in LSC.

4.3.2.3. The case of concessives

A concessive meaning can be expressed with either an adversative coordinate sentence or with a concessive subordinate sentence. Existing literature has not cleared our whether a concessive subordinate is notionally different than an adversative coordinate (Izutsu, 2008). In examples (55a) and (55b) the same concessive meaning is expressed through different syntactic structures.

(55) a. Although he needed the money, I did not lend him any.
b. He needed the money, but I did not lend him any.
(Rudolph 1996: 415)

LSC does not seem to behave differently than the spoken languages studied until now. In LSC the lexical markers ALTHOUGH and BUT are commonly used in the expression of concession (56a-b). Moreover, concession can also be expressed only with the markers described for contrast (without any lexical sign) when there is parallelism between the clauses, as illustrated in example (56c). When there is a lexical marker present like ALTHOUGH and BUT it is not necessary to use the combination of markers for contrast as we saw in section 4.2.1.1 with the use of the sign LIST.

(56) *Context*: There was a dessert contest.
a. GIORGIA CAKE CHOCOLATE VERY-GOOD **ALTHOUGH** FRUIT CL: fruits+++ BURN.
'Although Giorgia burnt the fruit cake, she baked a very good chocolate cake.'

b. GIORGIA CAKE FRUIT CL: fruits+++ BURN **BUT** CHOCOLATE CAKE VERY-GOOD.

'Giorgia burnt a fruit cake but she baked a very good chocolate cake.'

left sp right sp

c. GIORGIA CAKE FRUIT CL: fruits+++ BURN CHOCOLATE

right sp

CAKE VERY-GOOD.

'Although Giorgia burnt a fruit cake, she made a very good chocolate cake.'

At this point one could think about why a signer (or a speaker) would choose a specific structure in order to express concession. It seems that selecting a concessive subordinate clause (with a specific lexical marker) or an adversative coordinate clause in a particular context may have subtle pragmatic nuances in the interpretation of the sentence. In order to clearly see how the context affects the choice of an adversative or concessive clause we used the following classification, which was inspired by Haegeman (2003):

1. *Adversative/contrast background assumption*: Involves contrast and opposition.
2. *Concessive background assumption*: Involves concession.
3. *Counterexpectional background assumption*: Involves a violation of the expectation(s) triggered by the context.

4.3.2.3.1 Adversative/contrast background assumption

Adversative/contrast background assumption involves contrast and opposition, but not concession. In LSC it is always expressed through adversative coordination BUT and/or the use of the opposite sides of signing space, as illustrated in example (57). Examples (57a) with BUT and (57b) with the use of the opposite sides of signing space are completely felicitous sentences, but (57c), where ALTHOUGH is used, is not accepted by the informants since it is adding a concessive meaning.

(57) *Context*: There was a dessert contest. Giorgia baked different cakes but ended up losing the dessert contest. I ask you why Giorgia lost the contest.

a. GIORGIA CAKE$_a$ CHOCOLATE VERY GOOD **BUT** FRUIT CL: fruits+++$_b$ BURN

'Giorgia baked a very good chocolate cake but burnt a fruit cake.

right sp left sp

b. GIORGIA CAKE$_a$ CHOCOLATE VERY GOOD FRUIT CL:

left sp

fruits+++$_b$ BURN..

'Giorgia baked a very good chocolate cake (but) burnt a fruit cake.'

c. #**ALTHOUGH** GIORGIA CHOCOLATE CAKE VERY-GOOD CL: fruit FRUIT BURN.

'Although Giorgia baked a very good chocolate cake, she burnt a fruit cake.'

4.3.2.3.2 Concessive background assumption

In this type of assumption in addition to contrast there is concession involved. Depending on the structure or even on the type of connective that the signer chooses in relation to the previous context different biases may arise. Example (58) shows different examples of sentences elicited from the same context, which trigger different nuances in the pragmatic interpretation of the sentence. When using only NMMs or signing space without an overt lexical marker, like example (58a-b), the information given is considered neutral with no bias. In these cases, the order of the conjuncts is not important so swapping them does not affect the interpretation of the sentence.

In example (58c) there is a bias towards Giorgia losing, since the connective BUT highlights the content that follows it, and in this case the information is negative and may bias the jury towards Giorgia losing the contest. If we reverse the order of the conjuncts, like in example (58d), the pragmatic bias changes highlighting a positive fact: that Giorgia made a very good chocolate cake; in this case there is a bias towards Giorgia winning again due to the fact that the connective BUT highlights the content that follows it.

Lastly, in example (58e) the use of ALTHOUGH at the beginning of the sentence triggers a bias towards Giorgia winning, since using ALTHOUGH gives less importance to the content that follow it.

(58) *Context*: There is a dessert contest. The jury doubts if Giorgia should win or not because…

left bl+sp right bl+sp

a. GIORGIA CAKE CHOCOLATE VERY-GOOD FRUIT CL:

right bl+sp

fruits+++ BURN.

'Although Giorgia burnt a fruit cake, she made a very good chocolate cake.'

No bias.

left bl+sp right bl+sp

b. GIORGIA CAKE FRUIT CL: fruits+++ BURN CL: CAKE

right bl+sp

CHOCOLATE VERY-GOOD.

'Although Giorgia burnt a fruit cake, she made a very good chocolate cake.'

No bias.

c. GIORGIA CAKE CHOCOLATE VERY-GOOD **BUT** FRUIT CL: fruits+++ BURN.

'Giorgia made a very good cake, but she burnt a fruit cake.'

Bias towards Giorgia losing.

d. GIORGIA CAKE FRUIT CL: fruits+++ BURN **BUT** CHOCOLATE CAKE VERY-GOOD.

‘Giorgia burnt a fruit cake, but she made a very good chocolate cake.

Bias towards Giorgia winning. 

e. GIORGIA **ALTHOUGH** CAKE FRUIT BURN, CHOCOLATE BEST THAT’S-IT.

‘Although Giorgia burnt a fruit cake, she made the best chocolate cake.’

Bias towards Giorgia winning. 

4.3.2.3.3 Counterexpectional background assumption

In counterexpectational background assumption, in addition to contrast and concession, there is a violation of the expectation(s) triggered by the context. In this type of background assumption the position of ALTHOUGH slightly changes the pragmatic interpretation. For instance, ALTHOUGH introducing the positive fact emphasizes the counterexpectation, as illustrated in example (59a). Instead, ALTHOUGH introducing the counterexpectation gives less importance to it (59b). In this context BUT can be used as well, but ALTHOUGH is preferred by the informants to express the counterexpectational meaning.

(59) *Context*: There was a dessert contest for couples. Giorgia and Jordi won the contest (so we expect them to have done all desserts very well).

a. **ALTHOUGH** GIORGIA CAKE CHOCOLATE HANDS VERY-GOOD, JORDI FRUIT CL: fruit BURN.
'Although Giorgia made a very good chocolate cake, Jordi burnt a fruit cake.' 📽
It is unexpected that Jordi burnt a fruit cake.

b. GIORGIA CAKE CHOCOLATE HANDS VERY-GOOD **ALTHOUGH** JORDI FRUIT CL: fruit BURN
'Giorgia made a very good chocolate cake, although Jordi burnt a fruit cake.' 📽
It is unexpected that Jordi burnt a fruit cake.

In this subsection we have seen that again markers for contrast appear in adversative and concessive structures to express the contrast between the conjuncts. Moreover, the classification of different background assumptions has shown us that i) *Adversative background assumption* can only be expressed through adversative coordination, ii) *Concessive background assumption* can be expressed through concessive subordination and adversative coordination, and iii) *Counterexpectational background assumption* can be expressed through concessive subordination and adversative coordination. Therefore, in LSC, concessive subordination can also be expressed with adversative coordination, still finding nuances in meaning dependent on the context.

4.4 Chapter summary

In this chapter, the notion of contrast in LSC has been described and analysed. I have shown through empirical evidence that contrast is most of the times expressed through a specific combination of markers: left and right body leans and/or head tilts and the use of the opposite sides of signing space. Moreover, I have categorized the notion of contrast into three different types: parallel, selective and corrective contrast, which happen to share the same combination of markers plus some additional head movements in selective and corrective contrast (and instances of parallel implicit contrast with 'even'), which trigger additional pragmatic interpretations: exhaustivity and counterexpectation. I have also shown some syntactic strategies –fronting and clefting– that are used in some specific contrast types.

This research has also shown that, even though LSC has preferences for expressing contrast in a specific way, there are some phonological and morphological factors that can affect this marking, giving rise to alternative strategies, so the markers are just a strong tendency.

All in all, contrast seems gradient at the prosodic level, since the additional head movements found in some types add intensity to the prosody, which is perceived as stronger by the interlocutor. A reason for not considering prosodic contrastive markers as compositional, is that it is not always the case that each marker is used solely for expressing one meaning, and also because it is not always the case that adding a new marker adds a new meaning to

the proposition. On the other hand, contrast can be seen as compositional at the semantic level, since different interpretations such as exhaustivity, counterexpectations, and parallelism are combined to form a specific pragmatic discourse relation.

Further arguments for this claim have been provided describing and analysing coordinate and subordinate structures. The use of the same markers to express contrast in both coordination and subordination supports the view of contrast as a separate category in IS. Interesting facts have arisen when studying subordination in LSC: i) temporal clauses are expressed through conjunctive coordination, only through NMMs, and ii) concessive subordinate clauses can also be expressed with adversative coordination, but when no overt lexical markers like ALTHOUGH and BUT are used only the context can disambiguate the meaning.

The fact that in LSC the marking of contrast is the same for topics and foci provides empirical support for theories that consider contrast as an independent category orthogonal to topic and focus.

5 FOCUS PARTICLES

Focus particles (FPs) are a subclass of discourse particles that are used to mark focus. Some focus particles, like restrictive focus particles, have truth value effects on utterances, while other FPs, like additive scalar focus particles, have primarily pragmatic effects.

In chapters 3 and 4 we have seen how focus and contrast are expressed and interpreted in LSC. This chapter offers a first broad description of FPs in LSC, and an analysis of their contribution in meaning. It is mandatory to describe and analyse FPs if we want to fully understand how focus and contrast are encoded in a language. Also, it is crucial to know how FPs are interpreted in order to understand other features like exhaustivity, or like pragmatic interpretations that are triggered by non-truth conditional meaning. I describe additive, additive scalar and restrictive focus particles in LSC, which are expressed through different lexical signs sometimes in combination with specific non-manual marking, and, in some cases, through non-manual marking alone (prosody). Also, I provide a brief analysis of the non-truth conditional meaning they are associated with.

The chapter is organised as follows. Section 5.1 offers a review of relevant previous literature on FPs. Section 5.2 presents a description of different types of FPs (additive, additive scalar and restrictive FPs) in LSC. Section 5.3 analyses FPs and their

connection to expressive meaning. Section 5.4 summarizes the contributions of the chapter.

5.1 Focus particles: background

Focus particles have specific properties that make them a specific subclass of particles: i) they do not inflect and ii) they have semantic effects on focus (König 1991).

Due to their specific properties there is a debate in the literature that discusses whether focus particles are pure adverbial elements (Jacobs 1983, Büring & Hartmann 2001) or whether they form syntactic units with the associated constituent (Bayer 1996, Reis 2005). This dissertation does not focus on the syntactic nature of FPs; it directly assumes the treatment of FPs as a subclass of adverbs, following Jacobs (1983), König (1991) and Büring & Hartmann (2001). This chapter presents a basic description of the distribution and articulation of FPs in LSC sentences, and their semantic properties and pragmatic effects. Some of the works taken as a basis for this analysis are briefly summarized in the following subsections.

5.1.1 Focus particles realization

Three main types of FPs have been broadly described in the literature: restrictive focus particles, additive focus particles and additive scalar focus particles. All three types are often expressed with different adverbs like *only*, *also,* and *even* in English, and their

equivalents in different languages. These particles usually occur in a position adjacent to the focused element or elements in a sentence.

Some conjunctions have also been claimed to function as FPs. Kaplan (1984) and König (1991) claim that the FP *also* and the conjunction *and* may often fulfil the same or similar function(s) since both link parallel information to previous discourse. In line with this, Jacobs (1988) claims that the conjunction *and* should be analysed as a FP, since coordinate conjunctions introduce parallel alternatives that belong to the same set and have a common integrator.

Umbach (2004) discusses the semantic use of *also* and *only* in English in relation to exhaustivity. According to this work and based on Kiss (1998), additive focus adverbs can combine with parallel constructions, but cannot combine with a contrastive focus, which is considered exhaustive, as shown in example (1).

(1) ?? It was **also** a [hat]$_F$ that Mary picked for herself.

(Umbach 2004: 4, adapted from Kiss 1998)

By contrast, restrictive adverbs like *only* can combine with an exhaustive construction, like contrastive focus, without appearing redundant, as illustrated in example (2).

(2) It was **only** a [hat]$_F$ that Mary picked for herself.

(Umbach 2004: 4, adapted from Kiss 1998)

The FP *only* restricts the alternatives evoked by the focus. In example (3) below *Sue* is the only possible alternative that is seen by John among all the other possible alternatives in the alternative set of things that could be seen by John.

(3) John **only** saw [Sue]$_F$ at the party.

(Umbach 2004: 2)

As for SLs, focus particles have been studied for ASL, DGS, NGT, and ISL (Wilbur 1994, Wilbur and Patschke 1998, Happ & Vorköper 2006, Herrmann 2013, Kimmelman 2014, Volk & Herrmann 2021). Most of the studies partially address the study of FPs focusing more on the syntactic properties of these elements. An exception is Herrmann (2013), which offers the first systematic and comprehensive study on focus particles in SLs conducted to date (see section 2.3 for a more extended presentation of these works).

5.1.2 Focus particle interpretation

Focus particles might also trigger pragmatic interpretations. Some adverbs and discourse particles like *too* and *only*, for instance, may trigger presuppositions. König (1991: 54) uses two tests to confirm if a certain aspect of the meaning of a FP is a presupposition or not:

i) The entailment test, which assumes that presuppositions are one type of entailment of the sentences they are embedded in: whenever A presupposes B (A>>B), the possibility of not-B

cannot be left open if A is uttered, since asserting 'maybe no-B and/but A' leads us to a contradiction. Thus, the information that is assumed for the utterance to be meaningful is a fact.

ii) The test of discourse acceptability, which distinguishes presuppositions from ordinary entailments: whenever A>>B, the sequence 'B and A' must form a natural and acceptable piece of discourse.

On the basis of these tests König (1991) states the following:

> i) additive particles, like *also*, trigger the presupposition that there is an alternative value under consideration that satisfies the open sentence in the scope of the particle.
>
> ii) restrictive particles, like *only*, trigger a presupposition that corresponds to the relevant sentence in the scope of the particle.
>
> König (1991: 55)

FPs may be associated with conventional implicatures as well. In LSC the additive scalar FP UNTIL ('even') (and other signs related to additive scalar meaning) may trigger a conventional implicature. König (1991) analyses the additive scalar FP *even* as triggering conventional implicatures and not presuppositions, since i) it cannot be an entailment of its carrier sentence, and ii) it has a specific projection property: 'a point of view' uncertainty, which is entailed in the semantics of the word. In example (4), the belief that is

implicated from the utterance (that Kohl is the least likely person to be eloquent) can be attributed to either the sender or to Harry.

(4) Harry believes that even Kohl will be eloquent.

(König, 1991: 57)

Herrmann (2013) analyses additive scalar FPs in DGS and points out that there is a debate around the nature of scalar focus particles, since they may trigger either a "conventional implicature" or a "presupposition" (see Francescotti, 1995 and Potts, 2012). I rely on König (1991) and analyse additive scalar FPs as triggering conventional implicatures.

Another important aspect of FPs is that they are difficult to translate from one language to another (König 1991: 5). This is important to bear in mind since in the transcription of any sign language it is very common to use glosses from a spoken language which has a writing system. These glosses might be misleading if they are understood as being semantically equivalent because the meaning of the signs might not correspond completely to the meaning of the word used in the glosses. They are only the closest translation.

5.2 Focus particles in LSC

Some FPs in LSC have been previously described by Mayol & Barberà (2018) and Zorzi (2018). Mayol & Barberà (2018) describe a combination of non-manual markers used in the expression of

additive scalar FPs. Zorzi (2018) describes some uses of ALSO as a conjunction in LSC in coordination and gapping (see section 2.3 for more details on these works). This section presents a broader and more exhaustive description of three types of FPs in LSC: restrictive focus particles, additive focus particles, and additive scalar focus particles. I present a first general overview of the different ways LSC uses to express these meanings.

LSC makes use of different strategies in order to express additive, additive scalar, and restrictive meaning. The main and most common strategy for expressing the meaning of FPs are lexical signs: i) additive focus particles are mainly expressed though the signs ALSO, PLUS-Q, PLUS-F i PLUS-1, ii) additive scalar focus particles are expressed through the signs ALSO, UNTIL, INCLUDED, ON-TOP-OF, and iii) exclusive or restrictive focus particles are primarily expressed through the signs THAT'S_IT, ALONE and UNIQUE. Moreover, some of these lexical signs are combined with specific prosodic NMMs. In what follows the main lexical signs and the NMMs used in LSC to express these meanings are described.

5.2.1 Additive focus particles

In LSC additive focus particles are realized primarily through the following signs: ALSO, PLUS-Q, PLUS-F, PLUS-1, as illustrated in Figure 5.1.

Figure 5.1. Signs that function as additive FPs in LSC

In some languages coordinating conjunctions and additive FPs may serve as a link to parallel information (Kaplan 1984, König 1991). In LSC, the focus particle ALSO is frequently used to introduce parallel alternatives in coordinate clauses like in examples (5) and (6) (cf. Zorzi 2018).

left sp right sp
left bl right bl

(5) [RAQUEL PERSON]$_T$ [INTERPRETER]$_F$ **ALSO** [LINGUIST]$_F$.
'Raquel is an interpreter and also a linguist.'

left sp right sp
left bl right bl

(6) dh: LAW IX [ENGLISH]$_F$ **ALSO** [CATALAN]$_F$.
ndh: LAW
'That law's text is (written) in English and also in Catalan.'

Other additive focus particles that may serve as a link to parallel information in LSC are expressed through the signs PLUS-Q, PLUS-F, and PLUS-1, as shown in examples (7), (8) and (9).

left sp
left bl

(7) dh: LAW IX CL(): 'text' IX TONGUE ENGLISH **PLUS-Q**

right sp
right bl

CATALAN.

ndh: LAW CL(): 'document'

'That law's text is (written) in English and also in Catalan.'

left sp right sp
left bl right bl

(8) dh: LAW IX CL(): 'text' TONGUE ENGLISH **PLUS-F** CATALAN.

ndh: LAW. CL(): 'document'

'That law's text is (written) in English and also in Catalan.'

left sp right sp
left bl right bl

(9) dh: LAW IX CL(): 'text' TONGUE ENGLISH **PLUS-1** CATALAN.

ndh: LAW. CL(): 'document'

'That law's text is (written) in English and also in Catalan.'

In the examples above the FPs ALSO, PLUS-F, PLUS-Q and PLUS-1 are located between the two alternatives. Based on Jacobs (1988), I consider that when these signs (ALSO, PLUS-F, PLUS-Q and PLUS-1) are found in coordinate clauses they need to be analysed as FPs, since they are linking focused elements in the discourse that belong to the same set of alternatives and have a common integrator.

ALSO and PLUS-Q may also be found in other positions, like final position in the sentence, as shown in examples (10) and (11). ALSO can combine with other additive FPs as well, like PLUS-F, to emphasize the contrast, as illustrated in example (12).

(10) LAW IX CL-LIST TONGUE ENGLISH, CATALAN **ALSO**.
'That law's text is (written) in English and also in Catalan.'

(11) dh: LAW IX CL(): 'text' IX TONGUE ENGLISH CATALAN **PLUS-Q**.
ndh: LAW CL(): 'document'
'That law's text is (written) in English and also in Catalan.'

(12) LAW IX CL-LIST TONGUE ENGLISH **PLUS-F** CATALAN **ALSO**.
'That law's text is (written) in English and also in Catalan!'

Lastly, some additive FPs (ALSO and PLUS-F) can function as conjunctive adverbs (in König (1991) terms), in which case they appear in initial position in the sentence. In example (13) PLUS-F appears at the beginning of the sentence indicating that the scope of the focus is the whole sentence. Moreover, this particle is indicating

that an alternative proposition is being taken into consideration and added to the discourse by the interlocutor afterwards. Therefore, it is triggering the existential presupposition that another alternative proposition has been introduced in discourse (a more extended analysis of FPs and non-truth conditional meaning is presented in section 5.3).

(13) YES. **PLUS-F** ONLY, IX_3 SAY YES, ASSOCIATION FOR OBJECTIVE ATTEND NO FOR ACTIVITY THAT'S-IT MEAN ACTIVITY THAT'S-IT.

'It's true. Also, only attending the club for activities, not for regular meetings.'

(CORP 8 CG+QF, 00:01:49.357)

Some additive FPs are also found in scalar contexts expressing an additive scalar meaning. In the examples under (14) the additive FPs PLUS-Q, PLUS-F and PLUS-1 that are located introducing the last conjunct are accompanied by a marked prosody (NMMs) that codifies the additive scalar meaning. These NMMs are raised eyebrows, wide open eyes, chin up, backward head tilt and/or head thrust and a particular mouth gesture and/or marked mouthing.

(14) Your son is not behaving well, and you are very upset. You explain it to your friend.

'I am sick! He lied to me, cursed, arrived very late and on top of that he fought with his sister.'

rb,we,hthr,mth

a. TIRED! $_3$LIE$_1$, $_3$INSULT$_1$++, ARRIVE LATE **PLUS-Q**
FIGHT$_{REC}$ SIBLING^WOMAN IX$_3$(☞). 📹

rb,we,hthr,mth

b. IX$_1$ TIRED! $_3$LIE$_1$, $_3$INSULT$_1$++, ARRIVE LATE **PLUS-Q**
SIBLING BOTH FIGHT$_{REC}$. 📹

rb,we,hthr,mth

c. IX$_1$ TIRED! $_3$LIE$_1$, $_3$INSULT$_1$++, ARRIVE LATE **PLUS-F**
SIBLING BOTH FIGHT$_{REC}$. 📹

rb,we,hthr,mth

d. IX$_1$ TIRED! $_3$LIE$_1$, $_3$INSULT$_1$++, ARRIVE LATE **PLUS-1**
FIGHT$_{REC}$ SIBLING.

rb,we,hthr,mth **rb,we,hthr,mth**

e. IX$_1$ TIRED! $_3$LIE$_1$ **PLUS-F** $_3$INSULT$_1$++ **PLUS-F**
rb,we,hthr,mth
ARRIVE LATE **ON-TOP-OF** SIBLING FIGHT$_{REC}$.

rb,we,hthr,mth **rb,we,hthr,mth**

f. IX$_1$ TIRED! $_3$LIE$_1$ **PLUS-F** $_3$INSULT$_1$++ **PLUS-F**
rb,we,hthr,mth
ARRIVE LATE **PLUS-Q** BOTH SIBLING FIGHT$_{REC}$.
📹

rb,we,hthr,mth **rb,we,hthr,mth**

g. IX$_1$ TIRED! $_3$LIE$_1$. **PLUS-F** $_3$INSULT$_1$++ **PLUS-F**

rb,we,hthr,mth

ARRIVE LATE **PLUS-1** FIGHT$_{REC}$ SIBLING. 

rb,we,hthr,mth

h. #IX$_1$ TIRED! $_3$LIE$_1$ **ALSO/PLUS-F** $_3$INSULT$_1$++

rb,we,hthr,mth

ALSO/PLUS-F ARRIVE LATE **ALSO/PLUS-F** FIGHT$_{REC}$ SIBLING.

When more than two additive FPs are combined like in examples above, the last FP needs to have a higher degree of scalarity. If the degree of scalarity comes only from NMMs (as stated by Herrmann 2013) any combination of signs would be possible. However, not all combinations of additive FPs are possible in LSC. Example (14h) is considered infelicitous by the informants regardless of the NMMs, which are strongly marked along the whole sentence. These examples show that the line between signs that express pure additive FPs and additive scalar FPs is not always straightforward in LSC. The nuance of scalarity meaning is gradient and sometimes it may be expressed only by a specific more intense intonation (NMMs) used in the articulation of an additive FP (in line with Herrmann 2013 for DGS and Mayol & Barberà 2018 for LSC), but it can also be expressed through the use of different lexical signs in combination, especially when the prosody is very marked in the whole sentence, as will be shown in the next section.

5.2.2 Additive scalar focus particles

In LSC the additive scalar meaning may be expressed through different lexical signs: UNTIL, INCLUDED, ON-TOP-OF and ALSO (Figure 5.2), always in combination with specific NMMs (raised eyebrows, wide open eyes, chin up, backward head tilt and/or head thrust and a particular mouth gesture and/or marked mouthing.). Moreover, this meaning may also be expressed by means of NMMs alone, just like it happens in other SLs like DGS (Herrmann 2013). The additive FPs PLUS-F, PLUS-Q and PLUS-1 may also function as scalar particles when accompanied by specific NMMs, but in this section to avoid redundancy I will only be describing ALSO as an additive scalar FP.

Figure 5.2. Signs expressing additive scalar meaning in LSC.

Examples (15a-e) show different ways of expressing the additive scalar meaning in LSC through the different signs presented in

Figure 5.2. The additive scalar meaning can also be expressed through NMMs alone, as shown in (15e).

(15) Context: You organised a party. You invited your group of friends, but you didn't expect Anna to come, since she never goes to parties.
'The party was a success. Even Anna came!'

left sp right sp+ht
rb,we,hthr,mth

a. $IX_{1pl(poss)}$ GROUP PARTY SUCCESS. ANNA COME **ALSO**.

left sp right sp+ht
ht,br,we,mth

b. $IX_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL** ANNA COME.

left sp right sp+ht
ht,br,we,mth

c. $IX_{1pl(poss)}$ GROUP PARTY SUCCESS. **INCLUDED** ANNA COME.

left sp right sp+ht
ht,br,we,mth

d. $IX_{1pl(poss)}$ GROUP PARTY SUCCESS. **ON-TOP-OF** ANNA COME.

lef sp right sp+ht
ht,br,we,mth

e. $IX_{1pl(poss)}$ GROUP PARTY SUCCESS. ANNA COME.

Moreover, the different scalar FPs presented before have a different distribution in the sentence. Some of them may combine to emphasize the scalar meaning (16f-i); however, not all order configurations are possible in these combinations, and the sign ON-TOP-OF, which is more emphatic by nature, does not admit any kind of combination with another additive scalar FP (as will be shown in examples (19-22) below); it only admits combination with ALSO when ALSO is functioning as an additive particle, not as a scalar one. These redundant constructions are allowed in the language as an emphatic and expressive mechanism, but they do not add any additional semantic meaning.

(16) Context: You organised a party. You invited your group of friends, but you didn't expect Anna to come, since she never goes to parties.

lef sp — right sp+ht

ht,br,we,mth

f. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL** ANNA COME **ALSO**.

lef sp — right sp+ht

ht,br,we,mth

g. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **INCLUDED** ANNA COME **ALSO**.

lef sp right sp+ht

ht,br,we,mth

h. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL INCLUDED** ANNA COME.

lef sp right sp+ht

ht,br,we,mth

i. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL INCLUDED** ANNA COME **ALSO**.

Additive scalar FPs trigger the pragmatic meaning that the proposed alternative is unlikely to be certain in the utterance according to the previous context and/or the previous knowledge of the interlocutor/s. This pragmatic meaning of unlikeliness is triggered by the lexical particle itself as a conventional implicature (see section 5.3). Thus, different degrees of scalarity can be distinguished that are related to this meaning and that are directly connected to the degree of probability that an alternative proposition is true in a certain context. In LSC different degrees of scalarity can be observed through the different lexical signs presented above that function as additive scalar FPs. All of them are accompanied by the same combination of NMMs: raised eyebrows, chin up, backwards head tilt and a particular mouth gesture. The FPs ALSO, INCLUDED, UNTIL and ON-TOP-OF are analyzed and represented in Table 5.1.

Probability scale	Focus particles	Additive FPs	Additive scalar FPs
-	ALSO	x	x
	INCLUDED	Additive adverb/verb	x
	UNTIL	-	x
+	ON-TOP-OF	-	x

Table 5.1. Degrees of scalarity of additive scalar FPs in LSC.

The FPs ALSO seem to involve a lower degree of scalarity, since it can function as both an additive and an additive scalar FP, and its scalar meaning seems to be more directly connected to the use of specific NMMs (in line with Herrmann 2013). The sign INCLUDED may also express addition when it is functioning as a verb ('to include') or as an adverb ('inside'), but it has not been found in the elicitation of additive FPs or in corpus data. For this reason ALSO could be considered to be less inherently scalar than INCLUDED[18]. These two signs can combine in a similar way with the rest of FPs, as shown in example (16) above, with the exception that ALSO is the only additive scalar FP that can be located in final position in the sentence.

The FP UNTIL involves a higher degree of scalarity in comparison to ALSO and INCLUDED for various reasons: i) it cannot be used alone as an additive FP, ii) it cannot function with the

[18] Note that INCLUDED can be placed in final position in the sentence when it functions as a verb (TO-INCLUDE), but not as a FP.

additive scalar meaning without the specific NMMs[19], and iii) its possible order configurations when combined with other FPs are much more restricted. This is illustrated in examples (17) and (18), where the FP UNTIL is considered felicitous in combination with FP INCLUDED if it is placed in a certain position: UNTIL needs to be articulated before INCLUDED to be considered grammatical, so the scope of the NMMs can only spread from the FP UNTIL. This is reflecting the fact that here the FP INCLUDED in this position is not interpreted as an additive scalar FP but as the adverb 'inside', so the sentence becomes completely ungrammatical. The scalar meaning needs to take wide scope through the additive scalar FP UNTIL.

(17)

a. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL INCLUDED** ANNA COME.

b. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **INCLUDED UNTIL** ANNA COME.

(18)

a. IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL INCLUDED** ANNA COME **ALSO**.

[19] It would literally mean 'until' and not 'even'. Informants reject the use of the additive scalar FP without the specific NMMs, but they notice that even without the NMMs they would interpret the sign as 'even' (if the sign is contextualized in a sentence and not expressed in isolation.)

b. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **INCLUDED UNTIL** ANNA COME **ALSO**.

Lastly, the FP ON-TOP-OF involves the highest degree of scalarity since i) it cannot be used alone as an additive FP, ii) it cannot function with the additive scalar meaning without the specific NMMs[20], and iii) it cannot combine with any other FPs as illustrated in the ungrammatical examples (19-22), where all possible combinations are rejected by the informants.

(19)

a. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL ON-TOP-OF** ANNA COME.

b. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **ON-TOP-OF UNTIL** ANNA COME.

(20)

a. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL ON-TOP-OF** ANNA COME **ALSO**.

b. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **ON-TOP-OF UNTIL** ANNA COME **ALSO**.

[20] It would literally mean 'on top of a surface'. Again, informants reject the use of this additive scalar FP without the specific NMMs, but they acknowledge that even without the NMMs they would interpret the sign as 'even' (if the sign is contextualized in a sentence and not expressed in isolation).

(21)

a. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **INCLUDED ON-TOP-OF** ANNA COME.

b. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **ON-TOP-OF INCLUDED** ANNA COME.

(22)

a. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **INCLUDED ON-TOP-OF** ANNA COME **ALSO**.

b. *IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **ON-TOP-OF INCLUDED** ANNA COME **ALSO**.

5.2.3 Restrictive focus particles

In LSC restrictive meaning is expressed primarily by three signs: THAT'S-IT, UNIQUE and ONLY (Figure 5.3). Based on data from the elicitations in LSC restrictive meaning is expressed only by two signs: THAT'S-IT and UNIQUE. The former is always placed at the end of the sentence, and the latter is usually placed before the focused element but it can also be found in other positions as will be shown later on.

Based on corpus search, the use of these two signs is confirmed as that of restrictive FPs, but also a different sign is frequently used as a restrictive FP: the sign ALONE (which means 'only'). This sign

is repeatedly found in the LSC Corpus used by different signers of different ages, and gender.

Figure 5.3. Signs expressing the restrictive meaning in LSC

The sign THAT'S-IT is the most frequent one in both elicited and corpus data. It always appears in final position in the sentence after the focalized element(s) (23-25), and it is articulated with the mouthing of the word *prou* [prou], which means 'enough' in Catalan, and/or the mouth gesture [pss].

(23) NO, [POTATOES]$_F$ **THAT'S-IT**, AFTERNOON REST.
'No, (I bought) only potatoes. (I'll buy) the rest in the afternoon.'

(24) WOMAN [CAKE ONE]$_F$ **THAT'S-IT**.
'The woman only (baked) one cake.'

(25) IX$_1$ THINK WELL LIKE LOCAL SMALL SURE OBJECTIVE FOR [INTERPRETER LIST-2]$_F$ **THAT'S-IT**.

'I think it would be better to have like a small space only for interpretation services.'

(CORP, 8, CG+QF, 00:00:50.530)

The sign UNIQUE is the least frequent restrictive FP. Signers barely use it spontaneously in the elicitations (it only appears in one example), and it only appears one time in the LSC corpus, but informants consider it a grammatical particle for the expression of restriction. This particle mostly appears right before the focused element, as can be observed in example (26) below, and it is articulated with the mouthing [solo], which means 'only' in Spanish[21].

(26) WOMAN **UNIQUE** [CAKE ONE]$_F$.

'The woman only (baked) one cake.'

UNIQUE can also appear right after the focused element but the interpretation of the sentence changes depending on the position of this FP. In example (27) UNIQUE is located before the focused element POTATO meaning that the only thing that the signer bought were potatoes. By contrast, in example (28) UNIQUE is located right

[21] The mouthing of the sign THAT'S-IT is a word in Catalan and in the sign ALONE the mouthing is in Spanish. Both languages may alternate and the motivations for using one language or the other are still unknown.

after the focused element meaning that the signer bought the last potato that was left in the supermarket.

(27) ‘What did you buy?’
UNIQUE [POTATO]$_F$ BUY.
‘(I) only bought potatoes.’

(28) ‘What did you buy?’
[POTATO]$_F$ **UNIQUE** BUY.
‘(I) bought the last potato.’

Lastly, the sign ONLY just appears in corpus data. Informants in the elicitation sessions considered that the original and correct meaning of this sign is ‘alone’ and not ‘only’. Both informants are LSC teachers, and they do not consider this sign to be grammatically correct according to the normative language they apply in teaching. However, they acknowledge that ONLY is widely used in the Catalan signing community[22], and in fact it is very frequent in the LSC corpus data. Examples (29) and (30) are extracted from the LSC corpus. A quick search in the corpus can confirm that this sign is frequently used as a restrictive FP, and it is articulated by signers of different ages.

(29) EXAMPLE NO SPACE THAT’S-IT SPACE **ONLY** [FOR OBJECTIVE INTERPRETER BETTER++]$_F$ […]

[22] The spreading of the use of the sign ALONE meaning ‘only’ in the Catalan Sign Language community could be due to language contact with Spanish.

‘The space (could be used) only with the goal of improving interpreting services […].’

(CORP, 8, CG+QF, 00:01:14.111)

(30) MAN SLOWLY TALK NOTHING **ONLY** [WRITE STICK++]$_{F}$.
‘The man was doing slowly; (he) didn’t talk at all, (he) was only writing notes and sticking them (in the bank).’

(CORP, 7, DT, 00:01:16.061)

Also, this sign may combine with the sign THAT’S-IT for the purpose of emphasizing the restrictive meaning, as shown in example (29) above. It is important to point out that the sign THAT’S-IT is a homonym with the verb FINISH in LSC, which suggests that there has been a process of grammaticalization of this verb towards the FP, in a similar way to what Herrmann (2013: 304) describes for NUR1 in DGS.

Recall that in chapter 4 we saw that the combinations of non-manuals markings for contrast in LSC was not found in some constructions, especially when there was a lexical item that was already expressing contrast between two or more alternatives. In general, NMMs for contrast are not as systematically present in data containing focus particles as they are in sentences where there is no lexical item marking the contrast.

5.3 Focus particles and non-truth conditional meaning

Focus particles have been analysed regarding their pragmatic and non-truth conditional meaning by different researchers in spoken languages. However, for SLs pragmatic analysis in FPs is practically unexplored. This section offers a first (non-exhaustive) approach to the study of FPs non-truth conditional meaning in LSC that opens the field for further research in this topic. It is based on fragments from Navarrete-González & Barberà (2021).

5.3.1 Conventional implicatures and focus particles

In the same way as conversational implicatures, conventional implicatures are independent of truth-conditional meaning. Unlike conversational implicatures, though, conventional implicatures are not context dependent. According to Horn (2004: 4), conventional implicatures are "detachable but non-cancellable aspects of meaning that are neither part of, nor calculable from what is said, akin to pragmatic presuppositions." They are rather entailed in the semantics of words or expressions. Some of the elements that trigger conventional implicatures are adverbials, connectives and conjunctions, implicative verbs, parentheticals, expressives, and some specific intonational contours (Potts, 2005, 2013).

In this section some examples of conventional implicatures in LSC are shown in the use of some adverbials, like, for instance, the additive scalar FP UNTIL. As shown in section 5.2 additive scalar meaning in LSC is frequently expressed through the sign UNTIL

(Figure 5.4) articulated along with specific non-manual marking (backwards head tilt, brow raise, eyes wide open, and a mouth gesture). In examples (31-34) below the adverbial UNTIL is triggering the implicature that something is unlikely to happen.

Figure 5.4. Sign UNTIL in LSC

left sp right sp+ht

ht,br,we,mth

(31) IX$_{1pl(poss)}$ GROUP PARTY SUCCESS. **UNTIL** ANNA COME.

'The party was so successful. Even Anna showed up!'

Implicature: It is unlikely that Anna shows up at a party.

ht,br,we,mth

(32) MATHS EXAM EASY VERY-EASY. **UNTIL** JORDI IX$_3$ PASS.

'The maths exam was so easy. Even Jordi passed!'

Implicature: It is unlikely that Jordi passes a maths exam.

ht,br,we,mth

(33) MEETING FANTASTIC. **UNTIL** PERSON DIRECTOR COME ALSO.

‘The meeting went very well. Even the director attended!’
Implicature: It is unlikely that the director attends a meeting.

ht,br,we,mth

(34) IX APP VERY-GOOD. DOCUMENTS MODIFY ALLOW. **UNTIL** IX_{poss1} TEMPLATE CAN.
‘This app is very good. It allows you to modify the documents and you can even create your own template.’
Implicature: It is unlikely that an app allows you to create your own templates.

5.3.2 Presupposition and focus particles

In the presupposition of an utterance there is information that is assumed to be true by the interlocutor in order for the utterance to be meaningful. Some elements that trigger presuppositions in languages (of any modality) are implicative verbs, pronouns and determiners, discourse particles, clefts, and interrogative clauses (Potts, 2013). Moreover, the use of signing space in sign languages may also trigger presuppositional content (Schlenker & Lamberton 2012; Schlenker, Lamberton & Santoro, 2013, Navarrete-González & Barberà 2021). In this section some examples of presuppositions triggered by FPs in LSC are shown.

Adverbs and discourse particles like *too* and *only* may trigger presuppositions. As mentioned in section 5.1.2 König (1991: 54) uses two tests to confirm if a certain aspect of the meaning of a focus particle is a presupposition or not: i) the 'entailment test' and ii) the test of discourse acceptability. Based in these tests we present some examples of LSC sentences with the focus particles ALSO '*also*' and THAT'S-IT '*only'*. In example (35) ALSO is triggering the presupposition that the interlocutor already got advice other than 'legal advice'.

(35) IX_1 $_1ADVISE_3$ LAWYER ADVISE **ALSO.**
'I advise him/her that he/she get advice from a lawyer too.'
Presupposition: The receiver already got advice from another person before, or the sender already suggested getting advice from another person as well.

As mentioned before, restrictive focus particles are also common triggers of presuppositions. In example (36) below, the sign THAT'S-IT triggers the presupposition that Mary ate pizza. Since presuppositions survive under negation, in example (37) we can observe that the presupposition triggered in (36) still holds even if we negate the utterance.

(36) MARIA PIZZA ONE EAT **THAT'S-IT**.
'Mary ate only a pizza.'
Presupposition: Mary ate a pizza.

(37) MARIA PIZZA EAT ONE **THAT'S-IT NO**, IX-LIST-1 PIZZA, IX-LIST-2 SALAD IX-LIST-3 ICECREAM.
'Mary didn't eat only a pizza, she ate a pizza, a salad, and an ice cream.'
Presupposition: Mary ate a pizza. 

5.4 Chapter Summary

Additive FPs are expressed through the signs ALSO, PLUS-F, PLUS-Q and PLUS-1. Additive scalar FPs may be expressed through the signs UNTIL, INCLUDED, and ON-TOP-OF accompanied by specific prosodic NMMs (raised eyebrows, chin up, backward head tilt, and a particular mouth gesture) and also through the use additive FPs accompanied by these NMMs or even by the NMMs alone without any lexical sign. Contrary to what has been found for other SLs (Herrmann 2013) in LSC there are specific lexical signs for the expression of additive scalar FPs and the degree of scalarity is not dependent exclusively on the prosodic NMMs. Restrictive FPs are expressed by the signs THAT'S-IT, UNIQUE and ALONE, being the sign THAT'S-IT being the most frequent one. Lastly, it has been shown that FPs in LSC may trigger conventional implicatures and presuppositions.

In sum, this chapter has contributed to a better understanding of FPs in LSC. It has described all manual signs that are used in the expression of three different types of FPs: additive FPs, additive

scalar FPs and restrictive FPs and the NMMs that accompany them in some cases. It has also described their distribution, scope and possible combinations in the sentence. More importantly it has analysed the pragmatic meaning of FPs in LSC for the first time. There is still work to do in this field, but this chapter offers a first approach to the description and analysis of FPs in LSC.

6 CLEFTS AND EXHAUSTIVITY

As we have seen in section 2.4 clefts and exhaustivity have been barely addressed in the SL literature. Moreover, in LSC there are no studies that explore these topics. This chapter intends to provide a first overview on clefting and exhaustivity in LSC from a pragmatic point of view.

The chapter is organised as follows. Section 6.1 presents some previous literature on clefts categorization and interpretation that is relevant for the development of the chapter. Section 6.2 offers a description of clefts and pseudoclefts in LSC. Section 6.3 explores the interpretation of exhaustivity and non-truth conditional meaning in LSC. Section 6.4 summarizes the chapter.

6.1 Cleft structures: background

Clefts are syntactic structures frequently used in the marking of focus in different languages. This type of structure reorganizes syntactic constituents in a way that focus is placed in positions that are not usually allowed in the grammar of a language but that are preferred from a cognitive point of view in a particular context (Lambrecht 2001). In this section I show a brief review on the literature on clefts regarding their categorization and interpretation.

6.1.1 Cleft categorizations

Cleft sentences can be classified into different types. A common and widespread categorization divides clefts into three subtypes: i) clefts, ii) pseudoclefts, and iii) reverse pseudoclefts. Another common categorization in the study of clefts is based on the study of the English constructions and identifies three subtypes: i) it-clefts, which are introduced by the pronoun *it*, ii) wh-clefts, which are introduced by a *wh* particle, and iii) reverse wh-clefts, which are introduced by a *wh* clause that is placed in final position in the clause. De Cesare (2014) observes that the former categorization is not appropriate in the study of clefts in Romance languages, since the terms used for describing the different subtypes are based on elements that are not present in cleft structures of these languages (like the pronoun *it*). DeCesare proposes a new categorization that relies on the position of the clefted constituent, which better explains this phenomenon in languages of different families.

DeCesare uses a specific terminology to name the components of a cleft: the *copula* is the main clause verb (*is* in examples (1) to (3) below), the *cleft constituent* is the element in focus (*champagne*), and the *cleft clause* is the relative clause (*that*/*what*/ *ø I like*).

(1) It is *champagne* (that) I like.
(2) *Champagne* is what I like.
(3) What I like is *champagne*.

(DeCesare 2014: 1)

This new categorization distinguishes three subtypes of clefts: i) medial cleft constituent, where the cleft constituent is placed between the copula and the cleft clause, as shown in (1), ii) initial cleft constituent, where the cleft constituent is placed in initial position in the sentence, as shown in example (2), and iii) final cleft constituent, where the cleft constituent is placed in final position in the sentence after the copula and the cleft, as illustrated in example (3).

According to DeCesare this classification is more appropriate for the description of cleft structures in both Germanic and Romance languages. However, it does not consider languages that do not have an explicit copula, like most sign languages documented to date. Therefore, in this chapter I will use the more neutral terms *clefts* and *pseudoclefts* to describe LSC cleft structures, since LSC neither use pronouns like *it* in the construction of this type of sentences nor it has explicit copulas.

6.1.2 Cleft interpretation: exhaustivity

From a semantic-pragmatic perspective it has been argued that cleft structures are always interpreted as exhaustive sentences. However, there is a debate around the mechanisms that trigger the interpretation of exhaustivity in cleft constructions. Büring (2012) considers that exhaustivity in clefts is triggered by a conversational implicature, while a more recent study (Büring & Kriz 2013) proposes that exhaustivity in clefts is triggered by a presupposition.

Horn (1981) claims that exhaustivity in clefts is triggered by a "generalized conversational implicature, a pragmatic assumption naturally arising from focusing or exhaustive listing constructions in the absence of a specific contextual trigger or block". This idea is formalized as follows:

> The utterance in context C of any sentence which entails Fα and conventionally implicates (or, à la Gazdar (1978), potentially pressuposses) ∃xFx will induce a generalized conversational implicature to the effect that ~∃x(x≠α & Fx), where the variable x ranges over entities in a set determined by the context C.
>
> (Horn 1981: 8)

According to Horn (1981), Grice's claim about a sentence being rejected as false and a sentence being rejected as unassertable (but perhaps true) is directly relevant to the premise that clefts are inherently exhaustive.

> If you say "X or Y will be elected", I may reply "That's not so: X or Y or Z will be elected." Here… I am rejecting "X or Y will be elected" not as false but as unassertable.
>
> (Grice 1967, lecture V: 9, as cited in Horn 1981: 11)

This explains that sentences like (4) are not considered acceptable by most speakers, and that sentences like (5) are awkward. In (5) it is odd to use a cleft construction if, in fact, Mary ate both a pizza and a calzone, unless there is a specific context (that he cannot find) that allows for it.

(4) (#) It wasn't a pizza that Mary ate, it was a pizza and a calzone.

(Horn 1981: 6)

(5) (#) It was a pizza that Mary ate; indeed, it was a pizza and a calzone.

(Horn 1981: 9)

In section 6.2 we will see that LSC behaves in a slightly different way than English in the interpretation of exhaustivity in sentences like (4) and (5), since informants tend to accept as felicitous some of these sentences.

Some recent experimental works studying (not)at-issueness have tried to account for the difficulties in the cancellation of exhaustivity in clefts, showing that the degree of exhaustivity in clefts might depend on different factors and not on the syntactic structure itself. De Veaugh-Geiss et al. (2015) claim that there is a strong difference in exhaustivity effects between different types of focus constructions. For instance, they propose that it is not clefts that have a strong exhaustivity effect but canonical focus that has weaker exhaustivity effects due to the possibility of involving focus projection (in comparison to cleft structures where the scope of focus is clearer). Results in this work are in line with pragmatic analysis and propose that exhaustivity is a focus-triggered scalar implicature –since in the experiments violations of cleft

exhaustivity behave differently from contradictions. This finding clashes with traditional semantic accounts of exhaustivity in clefts.

6.2 Cleft structures in LSC

This section intends to give a brief first description of cleft structures in LSC. These structures have been barely studied for other SLs and, moreover, there is a controversial debate around which structures in SLs are equivalent to clefts and pseudoclefts in spoken languages (see Wilbur 1996, Caponigro & Davidson 2011, Kimmelman & Vink 2017, Hauser 2018).

6.2.1 Clefts

Cleft constructions in LSC are primarily expressed through the placement of the focused constituent in the initial position of the sentence. The focused constituent is accompanied by the sign SAME, which is part of the focused constituent. This sign can function as a relative marker (Mosella 2012) and/or as an intensifier in LSC. Examples (6) and (7) below have the same semantic meaning and are both elicited in the same context. Informants agreed that both (6) and (7) are felicitous in relation to the previous context that was signed to them. The only difference between both examples is that the focus PIZZA in example (6) is not accompanied by the sign SAME as is the case in example (7). Moreover, in both examples focus is marked with the NMM raised eyebrows, but in example (7) this

marker also spreads along the sign SAME indicating that PIZZA SAME is a single constituent (the focus constituent).

Context: Your friend is not sure if Mary ate a pizza or a sandwich. You tell him she ate pizza.

re
(6) [PIZZA]$_F$ MARY EAT.
'*Pizza*, Mary ate.'

re
(7) [PIZZA IX SAME]$_F$ MARY EAT.
'It is a *pizza* that Mary ate.'

Branchini (2014) analyses structures in LIS that are parallel to examples (6) and (7) and argues that the difference that determines that the second structure (the one with the relative marker) is a cleft is that it has as an inherent feature the presupposition of exhaustification of the focused element. Following this reasoning Branchini shows that in LIS exhaustivity of the cleft structure is not cancellable. LSC seems to work differently in this respect since it is acceptable to cancel exhaustivity in this type of structures. This is illustrated in examples (8) and (9) below (minimal pairs with respect to examples [6] and [7]), which admit the cancellation of the implicature.

re

(8) PIZZA MARY EAT ALSO SALAD.

'*Pizza*, Mary ate and also a salad.'

re

(9) PIZZA IX SAME MARY EAT ALSO SALAD.

'It was a *pizza* that Mary ate and also a salad.'

This finding suggests that the interpretation of exhaustivity in LSC (at least in the data elicited for this dissertation) is computed as a conversational implicature that can be cancelled. Therefore, exhaustivity in LSC does not seem to be an inherent feature of the syntactic structure (in section 6.3.1 further arguments are presented). In fact, if one believes that exhaustivity is an inherent feature of clefts one could then doubt if the constructions in examples (7) and (9) are indeed cleft structures, and this is a very plausible option. In LSC the distinction between a cleft structure and a sentence with a fronted focus is not that clear. The only argument that could tell us that examples (7) and (9) are clefts is the fact that they contain the sign SAME, which also functions as a relative marker (Mosella 2012). However, this argument is weak since the sign SAME may also function as an intensifier in LSC, and this might also be the case in examples (7) and (9). In section 6.3 further evidence is provided that shows that exhaustivity in LSC seems to be triggered primarily by conversational implicatures in this type of constructions.

6.2.2 Pseudoclefts

In some SLs pseudoclefts have been often documented as being expressed in structures of a question and an answer that have the shape of a rhetorical question (Wilbur 1996 for ASL, Morales-López et al. 2012 for LSE, Branchini 2014 for LIS, Kimmelman 2014 for RSL and NGT, among others). Example (10) is an example of a rhetorical question in ASL (see section 2.4 for more detailed information about these structures).

(10) SCOTT FONDLE WOMEN WHAT? HAVE WIFE. [ASL]
'Scott's all over women. What's his deal? He's got a *wife*.'
(Wilbur 1996: 211)

LSC signers also use this type of structure in their discourses. However, this structure is not very productive in natural speech with the function of a pseudocleft. In a search in natural corpus data not a single QAP functioning as a pseudocleft was found. Apart from the use as rhetorical questions, QAPs in the corpus were commonly found presenting specific information like titles or important dates and places for an event[23]. In example (11) the signer is introducing a narrative of a tale by presenting the title.

[23] It is also commonly used by SL interpreters to cope with the delay of the interpretation when the word order of the languages they are interpreting is very different. But in this dissertation I only focus in the analysis of native LSC signers discourses.

(11) SIGN TITLE WHAT? FROG WHERE BE.
'The title is *Frog where are you?'*
(CORP, 2, CG, 00:00:11:600)

In elicited data some examples were collected that seem to have the function of a pseudocleft. Examples (12) and (13) are generic sentences that involve a superlative in which all information is new information (all-new sentences). These sentences were presented out of the blue, without any previous context, as a pseudocleft in Spanish that the signers had to translate. Contrary to what happened in previous elicitacions of translations with contextualized Spanish pseudoclefts, the signers spontaneously offered question-answer pair structures in LSC (like examples [12-19]) as being compatible with the pseudocleft in Spanish. This was surprising since they rejected the use of QAPs in natural discourse in most contexts presented before, where a pseudocleft should be acceptable (based on other languages).

(12) IX_1 HATE NUMBER-ONE WHAT? LIE.
'What I hate the most in this world is lies.'

(13) WORLD HATE MORE WHICH? LIE.
'What I hate the most in this world is lies.'

(14) MARIA RELAX MORE WHAT? SWIM.
'What relaxes Maria the most is swimming.'

(15) MARIA RELAX MORE WHICH? SWIM.
'What relaxes Maria the most is swimming.'

(16) MARIA RELAX MORE? SWIMMING.
'What relaxes Maria the most is swimming.' 

(17) MARIA ENJOY MORE? DRAWING.
'What Maria enjoys the most is drawing.' 

(18) MARIA ENJOY++ WHICH? DRAWING.
'What Maria enjoys the most is drawing.' 

(19) MARIA ENJOY MORE WHICH? DRAWING.
'What Maria enjoys the most is drawing.' 

It is important to notice that examples (16) and (17) omit the wh-word since in LSC the final wh-word in an interrogative may be omitted and the prosody (NMMs) are enough to interpret the meaning. Moreover, when the wh-word is present, both signers preferred examples with WHICH ([15], [18], [19]), not because the sign WHAT is ungrammatical in these sentences, but because it produces a phonological clash with the previous sign (MORE).

In line with the analysis of Kimmelman & Vink (2017) for NGT, the variability in LSC data suggests that QAPs in LSC are undergoing a process of grammaticalization (cf. Kimmelman & Vink, 2017, Hauser, 2018). Kimmelman & Vink (2017) claim that it is unlikely that NGT QAPs based on the corpus data analysed for NGT being the final step of the grammaticalization process the question-answer clause, as represented in the following schema:

(regular question →) rhetorical question → discourse-level question-answer combination → question-answer clause

(Kimmelman & Vink 2017: 440)

LSC data shows that structures like the ones in examples like (12-19) above (QAPs that function as pseudoclefts) are very close to (and might have been grammaticalized from) specificational sentences, and that both structures have their origin in rhetorical questions that have the same form. In fact, Barberà (2015) describes that LSC predicational sentences are characteristic for localizing the nominal in signing space, as illustrated in example (20), while specificational sentences are expressed with a QAP, as shown in example (21).

(20) FRANCESC {IX$_3$/PERSON$_3$} ENGINEER.
'Francesc is an engineer.'

(Barberà 2015: 110)

(21) ENGINEER WHO? FRANCESC.
'The engineer is Francesc.'

(Barberà 2015: 110)

6.3 Cleft interpretation and exhaustivity in LSC

The study of exhaustivity poses many challenges in linguistic research. It has been said that it is an inherent feature of some structures like clefts. For some SLs this question has not addressed, so this section offers a first preliminary analysis of exhaustivity in

LSC. It analyses how clefts are interpreted pragmatically and how exhaustivity is encoded in different structures of the language.

6.3.1 Exhaustivity effects

As we have seen in section 6.2.1 exhaustivity does not seem to be an inherent feature of cleft structures. In recent experimental research, it has been shown that depending on the structure of the cleft and on other factors, like the type of predicate, exhaustivity can be more easily cancellable (De Veaugh-Geiss et al. 2015, Renans & De Veaugh-Geiss 2019).

Data presented in this section is based on an adapted test run by Horn (1981). Instances of apparently exhaustive sentences in LSC are shown with different structures, most of which are interpreted as conversational implicatures, since they are easily cancellable.

Examples (22) and (23) below are information focus (IF) sentences in which exhaustivity is directly triggered by a conversational implicature. When uttering 'Mary ate pizza' the addressee might easily interpret that Mary ate nothing more than a pizza (Horn 1981), making an exhaustive interpretation. The interpretation of these sentences could then be similar to the interpretation of example (24) where the exhaustive reading is explicit.

(22) *Context*: You explain to a friend what Mary ate.
'Mary ate pizza.'

a. MARY PIZZA EAT-PIZZA. 

b. MARY PIZZA CUT CL 'eat'. 

c. MARY PIZZA EAT. 

(23) *Context*: You explain to a friend that Mary ate something (but you don't say what).
'Mary ate something.'

a. MARY SOMETHING EAT. 

b. MARY EAT SOMETHING. 

(24) *Context*: Your friend says that Mary ate pizza and burger, but you tell him that she only ate pizza.

a. MARY EAT OTHER-THINGS NOTHING-5 GOAL PIZZA THAT'S-IT.
'Mary ate nothing but a pizza.' 

b. MARY PIZZA ONE EAT THAT'S-IT.
'Mary ate only a pizza.' 

In example (24) the fact that Mary only ate a pizza is explicitly mentioned with the help of the restrictive focus particle THAT'S-IT, unlike examples (22) and (23). In the same line example (25a-b) below (which are examples of selective contrast) might be interpreted as exhaustive by the addressee just like in examples (22-24). In this case though the syntactic structure is different. Example (25a) has a fronted focus, and example (25b) has a fronted focus

accompanied with the sign SAME that can be functioning either as a relative marker indicating that the construction is a cleft or as an intensifier that reinforces the fronted focus, which would indicate that the construction is a fronted focus much like (25a) but more emphatic. In any case, here we can ask ourselves if all these sentences (22-25) are interpreted as exhaustive through a conversational implicature that can be cancelled.

(25) *Context*: Your friend is not sure if it was a pizza or a burger that Mary ate and you tell him that it was a pizza.
'It was a pizza that Mary ate.'

re
a. [PIZZA]$_F$ MARY EAT.
'*Pizza*, Mary ate.' 

re
b. [PIZZA IX SAME]$_F$ MARY EAT.
'It is a pizza that Mary ate.'

To test how strongly exhaustivity interpretation is perceived in these constructions I also elicited a polar question, illustrated in (26a-c). The structure presented in (26a) is only acceptable by the informants if we are talking about a specific type of pizza. This led us to think that (26a) is not parallel to the structure in English *Was it a pizza that Mary ate?*, which might be another argument against the cleft analysis of structures like (25b). Anyway, either with a specific pizza or not, when offering as possible affirmative and negative answers to the questions presented in (26a-c) (examples

[27a-c]) signers rejected the negative answer arguing that negation here (illustrated in example [27c]) is only felicitous with a question including an inherently exhaustive lexical item like a restrictive focus particle (*Was it **only** a pizza that Mary ate?*). This indicates that they are not interpreting (26a-c) as exhaustive, that is they are not calculating the exhaustive implicature in the question.

(26) You are not sure if Mary ate a pizza and you ask your friend. 'Was it a pizza that Mary ate?'

a. SAME IX PIZZA IX$_3$ MARY EAT? 
re fe

b. MARY PIZZA EAT? 
re fe

c. PIZZA MARY EAT? 

(27) *Context*: Your friend answers that it was a pizza, a salad, and an ice-cream that Mary ate.

a. PIZZA SALAD BURGER THREE IX$_3$ MARY. 

b. YES, ADD SALAD BURGER. 

c. #NO ALSO SALAD BURGER. 

A further test that may help us determine and clarify which structures in LSC are equivalent to clefts is run in example (28) below. In this example we would expect that a cleft as an answer is a felicitous answer according to the context presented before.

However, a structure that is supposed to be a cleft like (28b) is not felicitous in LSC. This may be another argument against the analysis of these structures with SAME as equivalents to clefts.

(28) *Context*: Your friend says that Mary ate salad, pizza and a burger, but you know that's not true and you say it without saying what she ate.
'It wasn't a pizza, a salad, and burger that Mary ate.'

a. SALAD, BURGER, PIZZA MARY EAT NO. 
b. #SAME SALAD, BURGER, PIZZA MARY EAT NO.

Examples (29a-b) are felicitous in contrast to what Horn found for their English counterparts, but they are only acceptable if they include the numeral ONE. This is interesting because intuitively one could think that the signer would add information about the number of pizzas that Mary ate (i.e. PIZZA MARY EAT ONE NO, TWO 'Mary didn't ate a pizza but two') but, in fact, it is completely acceptable for the signers to add a different meal like SALAD. In this example the sign SAME did not appear in the elicitation since it would refer to a specific pizza.

(29) *Context*: Your friend says that Mary ate a pizza, but you know that she also ate a salad, and you say it.
'(#) It wasn't a pizza that Mary ate, it was a pizza and a salad.'

a. PIZZA MARY EAT ONE NO, PIZZA PLUS SALAD.

b. MARY PIZZA ONE EAT NO, SALAD ADD.

c. # PIZZA MARY EAT NO, PIZZA PLUS SALAD.

d. #MARY PIZZA EAT NO, SALAD ADD.

The difference in felicitousness between English and LSC that we observe in examples (29c-d) disappears when a restrictive focus particle, like *just* in English or THAT'S-IT in LSC is added, as shown in example (30). This indicates, as expected, that restrictive focus particles provide the exhaustive meaning and, in this example, exhaustivity is not triggered by a conversational implicature.

(30) *Context*: Same as the one presented in example (29) but adding a restrictive focus particle:
'It wasn't just a pizza that Mary ate, it was a pizza and a salad.'

MARY PIZZA ONE THAT'S-IT NO. PIZZA IX-LIST-2 ALSO SALAD.

Another interesting fact of LSC in comparison to English is shown in example (31). In English if we negate that Mary ate pizza we cannot add pizza in the correction and that is why the sentence (#)*Mary didn't eat a pizza, she ate a pizza, a calzone, and an order of ziti* is not acceptable when tested with English speakers (Horn 1981). In LSC below an equivalent sentence (31b) is not felicitous. However, if the alternative pizza is not explicitly mentioned in the second conjunct the informants accept the sentence (31a). One

striking difference between the English example and the LSC example is that in LSC signers are using the numeral ONE.

Just as we saw in examples (29) and (30) above, when a restrictive focus particle like *just* in English or THAT'S-IT in LSC is added to the first clause the sentence in (31b) becomes acceptable (32), even if the first item of the set is repeated in the second clause.

(31) *Context*: Your friend says that Mary ate a pizza, but you know that she also ate salad and a burger, and you say it.
'(#) Mary didn't eat a pizza, she ate a pizza, a calzone, and an ice-cream.'

re fe

a. MARY PIZZA ONE EAT NO. BURGER, SALAD.

b. #MARY PIZZA ONE EAT NO. PIZZA IX-LIST-2 SALAD, IX-LIST-3 BURGER.

(32) *Context*: Same as the one presented in example (31) but adding a restrictive focus particle:
'Mary didn't eat just a pizza, she ate a pizza, a calzone, and an ice-cream.'

a. MARY PIZZA EAT ONE THAT'S IT NO, IX-LIST-1 PIZZA, IX-LIST-2 SALAD IX-LIST-3 ICE-CREAM.

b. MARY PIZZA EAT ONE THAT'S-IT NO, PIZZA, ICE-CREAM, SALAD.

Factive verbs, such as *know* carry presupposition that the complement sentence represents a true proposition (Kartunnen 1971). In example (33) the verb *know* triggers the presupposition that Mary ate a pizza so the cancellation of this presupposition results in a contradiction that is accepted neither by speakers of English (Horn 1981) nor by LSC signers. However, this problem disappears when we introduce a restrictive focus particle in the sentence, like in example (34), since the addition of the restrictive focus particle is not negating the truth of the proposition. The same phenomenon can be observed in examples (35) and (36) with an embedded interrogative sentence, and in examples (37) and (38) adding an embedded clause introduced by a factive predicate like 'discover'.

(33) *Context*: Your friend says that Mary ate a pizza, but you tell him that you already know and that, moreover, she ate something more (but you don't tell him what).
'I know Mary ate a pizza, but it wasn't #*a pizza* that she ate.'

#IX$_1$ KNOW-ALREADY MARY PIZZA EAT ONE, ACTUALLY EAT ONE PIZZA NO.

(34) *Context*: Same as the one presented in example (33) but adding a restrictive focus particle:
'I know Mary ate a pizza, but it wasn't only a pizza that she ate.'

a. IX$_1$ KNOW-ALREADY MARY PIZZA EAT ONE, BUT ONE PIZZA THAT'S-IT NO. 

b. IX$_1$ KNOW MARY EAT PIZZA ONE, BUT PIZZA EAT ONE UNIQUE NO. 

c. IX$_1$ KNOW-ALREADY MARY PIZZA EAT ONE, BUT PIZZA ONE UNIQUE NO. 

(35) *Context*: Your friend says that Mary ate pizza. You know it but you are not sure if she ate something else and you ask.
'I know Mary ate a pizza, but was it *#a pizza* that she ate?'

a. #IX$_1$ KNOW MARY PIZZA ONE EAT, BUT PIZZA ONE EAT?

b. #IX$_1$ KNOW MARY IX$_3$ PIZZA EAT ONE, BUT PIZZA ONE?

(36) *Context*: Same as the one presented in example (35) but adding a restrictive focus particle:
'I know Mary ate a pizza, but was it only a pizza that she ate?

KNOW MARY EAT PIZZA, BUT {UNIQUE PIZZA/PIZZA THAT'S-IT} IX$_3$ EAT?

(37) *Context*: You thought that Mary had eaten a pizza and a salad and you just found out that she only ate pizza.
'I know Mary ate a pizza, but I've just discovered that it was *#a pizza* that she ate!'

#IX_1 KNOW IX_3 MARY PIZZA ONE EAT DISCOVER PIZZA ONE

(38) *Context*: Same as the one presented in example (37) but adding a restrictive focus particle:
'I know Mary ate a pizza, but I've just discovered that it was only a pizza that she ate!'
IX_1 KNOW MARY PIZZA ONE EAT DISCOVER PIZZA ONE THAT'S-IT.

Further examples of the findings presented above are illustrated in examples (39-41). Example (39) is not acceptable to LSC signers since it is trying to cancel the truth of a proposition. Example (40) adds a restrictive focus particle (THAT'S-IT) that "saves" the presupposition that Mary kissed John. However, example (40) is not parallel to the English example since the signer needs to explicitly add other referents (even if she respects the secret of telling the names as asked in the context). Lastly, example (41) is acceptable in LSC contrary to what happens in English probably because of the addition of the numeral ONE. As we have seen in previous examples, the numeral appears very frequently in LSC in this type of sentences. The addition of the numeral might be indicating that

there is more than one alternative that needs to be taken in consideration for the sentence to be true.

(39) *Context*: You know that Mary kissed someone else in addition to John.
'Mary kissed John, but it wasn't #*John* she kissed.'

MARÍA JUAN BESAR, PERO JUAN IX_3 BESAR NO.

(40) *Context*: You know that Mary kissed someone else in addition to John and you say it but you don't say who this person is.
'Mary kissed John, but it wasn't only John she kissed.'

a. MARY KISS JOAN ONE THAT'S-IT NO IX_a IX_b IX_c. 
b. *MARY KISS JOAN ONE THAT'S-IT NO.

(41) *Context*: You know that Mary kissed someone else in addition to John and you say the name of that person.
(#) 'It wasn't John that Mary kissed, it was John and Bill.'

MARY KISS JOAN ONE NO, JOAN BILL. 

6.3.2 Non-truth conditional meaning

This subsection mainly focuses on the interpretation of presupposition in possible cleft structures in LSC and the

interpretation of exhaustivity in scalar implicatures. The content here is taken from Navarrete-González & Barberà (2021), where implicatures and presuppositions in LSC are analysed.

6.3.2.1. Presuppositions

Clefts, interrogatives, and non-restrictive relative clauses may trigger presuppositions (Potts, 2013). In examples (42-45) below, different syntactic structures are presented, all of which trigger the same presupposition, namely that someone took the chair.

(42) CHAIR TAKE WHO? (interrogative)
'Who took the chair?'
Presupposition: Someone took the chair 

(43) CHAIR TAKE WHO? JOAN. (pseudocleft)
'The one who took the chair was Joan.'
Presupposition: Someone took the chair. 

(44) JOAN SAME CHAIR TAKE. (cleft)
'It was Joan who took the chair.'
Presupposition: Someone took the chair. 

(45) BOY CHAIR TAKE OFFICE NEXT-TO. (non-restrictive relative clause)
'The boy who took the chair is in the office next door.'
Presupposition: Someone took the chair

6.3.2.2. Scalar implicatures

Scalar implicatures are often connected to lists of lexical items ordered by entailment and informativity, such as for example <all, most, many, some, few>, <and, or>, <always, often, sometimes> (Horn, 1972; Levinson, 1983). Scalar implicatures attribute an implicit meaning beyond the literal meaning of an utterance, which suggests that the sender had a reason for not using a more informative term on the scale. The choice of the weaker term suggests that none of the stronger items in the scale hold. This is shown in (46) in the use of 'some' to suggest the implicit meaning 'not all'. The lexical item SOME triggers the conversational implicature that 'not all professors in the faculty are dedicated to sign language'.

(46) FACULTY, PROFESSORS SOME FOCUS LANGUAGE SIGN.
'At the faculty, some of the professors are dedicated to sign language.'
(Navarrete-González & Barberà 2021: 150)

Davidson (2014) conducted an experiment to test the calculation of this type of conversational implicatures in American Sign Language (ASL). The goal was to determine if native signers of ASL calculated scalar implicatures in the same way English speakers do or rather there were some differences triggered by the difference in the modality (i.e. the channel of perception and production of the language). Results of this study found no differences between ASL signers and English speakers in the calculation of prototypical

scales (<all, some>) or in the interpretations of numbers (<three, two>). However, the use of signing space and classifier constructions in signed discourse triggered increased implicatures in ASL as compared to English speakers in ad hoc scalar implicatures. Signing space and classifiers are specific devices of the visual-spatial modality of SLs. Signing space, as we have seen along this thesis, is the three-dimensional space in front of the signer's torso where signs are articulated, which is used to provide linguistic meaning at the phonological, morphosyntactic and discourse level (Barberà, 2015). Classifiers are morphemes with a non-specific meaning that represent entities by depicting salient characteristics through manual configurations (Zwitserlood, 2012).

I partly replicated Davidson (2014) experiment in an elicitation task in order to see how LSC signers behave in the calculation of ad hoc scalar implicatures. The participants, two Deaf native LSC signers, were shown a picture in which there were three items (Figure 6.1).

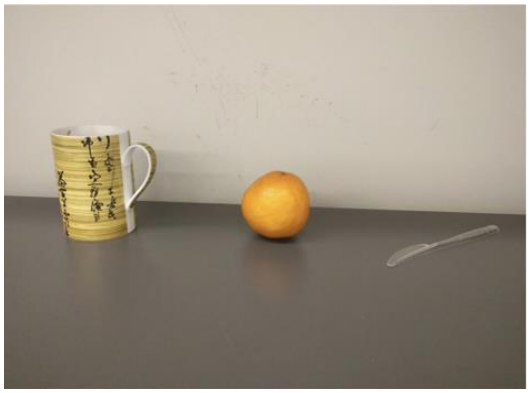


Figure 6.1. Image used in the elicitation of scalar implicatures

Afterwards, different sentences with different conditions were signed in LSC. The participants had to rate if the sentences presented were felicitous in relation to the picture. The options of rating were *perfect*, *good*, and *not good*. The conditions for the task were the following:

1. +Position,+Number: Respecting the location in space and the number of items

    a. +CL: Using classifiers
    b. –CL: Not using classifiers

2. +Position, –Number: Respecting the location in space but not the number of items

    a. +CL: Using classifiers
    b. –CL: Not using classifiers

3. –Position, +Number: Respecting the number of items but not the location in space

    a. +CL: Using classifiers
    b. –CL: Not using classifiers

4. –Position, –Number: Respecting neither the number of items nor the location in space

    a. +CL: Using classifiers
    b. –CL: Not using classifiers

Condition (1) was considered the most felicitous one with the use of classifiers. It was also acceptable without the use of classifiers, but both informants agreed on the preference for using classifier constructions in this type of descriptions, since you can provide more exhaustive information. Condition (2) was less felicitous than condition (1), since signers considered it underinformative, but overall it was considered quite acceptable too. In condition (2) the use of classifiers (2a) was preferred again to depict the image. However, the lack of an element was considered less acceptable in the condition with classifiers than in the condition in which only lexical signs were uttered (2b). By contrast, conditions (3) and (4), where the position in space was violated, were considered completely infelicitous independently of the use of classifier constructions. Use of space respecting the position of referents thus is mandatory for a faithful depiction of the image in LSC and it is also expressing contrast among the three alternatives (parallel contrast).

These preliminary results show that in LSC what seems to matter in the calculation of ad hoc scalar implicatures is primarily the use of signing space and classifier constructions. The location of the referents in signing space must be mapped according to their position in the actual world for the sentence to be felicitous. If this is the case, the utterance is not completely rejected even if it is underinformative, so the scalar implicature is not calculated, and the participants behave more logically. Moreover, the use of classifiers is important since it always triggers the calculation of the implicatures. In the depiction of an image through classifier

constructions the utterance describing the image is expected to be exhaustive, since not being exhaustive results in the depiction of a different image. By contrast, when describing the same image by using only lexical signs this premise is more lax, and they may behave more logically accepting underinformative utterances. In sum, the use of signing space and classifier constructions trigger an increase in the calculation of scalar implicatures in LSC. These preliminary results are in line with Davidson (2014), who claimed that the use of space and classifiers triggered a more pragmatic behaviour in ASL signers in comparison to English speakers.

Moreover, participants were asked to rate the sentence 'there are two items in the picture', in order to see if the calculation of scalar implicatures with numbers worked in the same way. Both participants rated the sentence as completely infelicitous in relation to the picture, so implicatures with numbers seem to be calculated in the same way as ASL signers and English speakers.

6.4 Chapter summary

This chapter has provided a description of structures compatible with two types of cleft structures in LSC: clefts and pseudoclefts. Regarding clefts, it has been shown that it is impossible to know at this point if these structures are equivalent to clefts in spoken languages (contrary to what has been postulated for other SLs). In relation to pseudoclefts we have seen that they are realized with the form of a question-answer pair, and they are rare in LSC data since LSC signers prefer to use other structures in contexts in which

pseudoclefts could be completely acceptable. In line with Kimmelman & Vink (2017) LSC question-answer pairs may have different functions that indicate that there is an ongoing process of grammaticalization of these constructions, just as what happens in other SLs like NGT or LSF.

This chapter has also provided a pragmatic analysis of cleft structures that shows that in structures that contain a fronted focus accompanied by the sign SAME (which are parallel to what has been postulated to be clefts in SLs) exhaustivity is not an inherent feature of the structure. Instead, exhaustivity is calculated via a conversational implicature that can be easily cancelled. Moreover, a pragmatic analysis of non-truth conditional meaning in clefts and other structures confirm these findings and show that just as has been found for many other languages, LSC cleft structures may trigger presuppositions. In the case of scalar implicatures the use of space is mandatory in the depiction of the items presented in an image expressing parallel contrast plus the topographic location. Also, there are differences in comparison to calculation of scalar implicatures in English speakers: LSC signers (like ASL signers) behave more logically due to the use of classifier constructions and signing space.

All in all this chapter presents a first description of cleft structures and a first pragmatic analysis that opens up a path for future research in this area in SLs.

7 FINALS REMARKS

7.1 Contributions

This dissertation has shown through empirical evidence from LSC that focus and contrast are independent Information Structure (IS) notions that may overlap with each other and that are marked with specific manual and non-manual markers (NMMs). It has also shown that some NMMs may trigger pragmatic interpretations, and when combined they may trigger more complex discourse related meanings.

According to the goals proposed in the introduction of this thesis the following contributions have been made:

Goal 1: Description of focus and contrast markers in LSC.

This dissertation has shown that focus in LSC is expressed through particular syntactic structures and prosodic (manual and non-manual) markers, in line with previous descriptions of focus in SLs (see Kimmelman 2014). Focus may also remain unmarked when it is not contrastive (information focus).

In addition, it has shown that contrast in LSC is expressed through a combination of NMMs (body leans and/or head tilts from left to right and the use of the opposite sides of space), and it can

also be encoded in specific lexical signs like some focus particles (ALSO, PLUS-F, PLUS-Q, PLUS-1, UNTIL, INCLUDED), connectives like BUT and ALTHOUGH, and the sign LIST, among others. It has been argued that the combination of NMMs used in the expression of contrast is common to all types (parallel contrast, selective contrast and corrective contrast), and that it may appear in both coordinate and subordinate clauses as well indicating that we are dealing with a unique notion that involves different subtypes.

Data has also shown that there are some phonological and morphological restrictions that may override these markers if there is another grammatical function to be fulfilled by them that determines the grammaticality of the construction. Therefore, contrast marking is a (strong) tendency while the marking of focus is more unpredictable and less systematic when it is not contrastive.

Goal 2: Pragmatic analysis of different contrast types (parallel, selective and corrective contrast) and the correlation between prosodic markers and pragmatic interpretations in each of the types.

This thesis has contributed to giving evidence that the combination of body leans and/or head tilts and the use of signing space in LSC are marking contrast due to similarity plus dissimilarity (semantic parallelism) in all types of contrast. Moreover, some NMMs in LSC (additional head movements in selective and corrective contrast and instances of parallel implicit contrast with ‘even’) trigger additional pragmatic interpretations: exhaustivity and counterexpectation.

Contrast is a single notion that involves different types, which are built compositionally, since different interpretations such as exclusion, exhaustivity and violation of expectations or unlikeliness are combined on top of a basic condition (contrast due to similarity plus dissimilarity *aka* semantic parallelism) to form more complex specific discourse relations.

Goal 3: Description and pragmatic analysis of elements and structures that trigger exhaustivity: focus particles and clefts.

This dissertation shows that different types of focus particles (additive, additive scalar and restrictive) are expressed through different lexical manual signs and specific NMMs. It also describes their distribution, scope and possible combinations in the sentence. One significant finding is the fact that in LSC additive scalar FPs can be expressed through specific lexical markers unlike other SLs, like DGS (Herrmann 2013), that only express scalarity through the use of specific NMMs.

It has also been shown that some FPs, like THAT'S-IT, ALSO or UNTIL are common triggers of conventional implicatures and presuppositions.

A first approach to the study of clefts in LSC has been provided. Two different types have been described and analysed for the first time: clefts and pseudoclefts. Contrary to what has been claimed for other SLs (see Branchini 2014) in LSC it is not clear to determine if structures containing the sign SAME (a sign that functions as a

relative marker and also as an intensifier in LSC) are equivalent to the traditional notion of a cleft construction.

Regarding pseudoclefts LSC seems to be undergoing a process of grammaticalization just as stated by Kimmelman & Vink (2017) for NGT and by Hauser (2018) for LSF. The question-answer pair claimed to be a pseudocleft in some SLs (Wilbur 1996) is extremely rare in LSC in the context in which a pseudocleft would be completely felicitous. Instead, this structure is found in other contexts fulfilling other functions like rhetorical questions or specificational sentences. Only in the specific context of out-of-the-blue generic sentences involving a superlative this structure was spontaneously used and completely accepted by the informants.

Regarding the interpretation of exhaustivity in clefts and other structures it has been shown that exhaustivity in LSC is easily cancelled in structures containing a fronted focus and the sign SAME (possible cleft structures) since it is calculated via a conversational implicature. This finding also differs from other analyses of clefts in SLs where the exhaustive interpretation is not cancellable (Branchini 2014), and it poses some problems for traditional semantic analyses that treat exhaustivity as an inherent feature of the syntactic structure of clefts.

A preliminary pragmatic analysis of presuppositions and scalar implicatures in clefts and other LSC structures is also presented. Results show that cleft structures may trigger presuppositions, as expected. Also, a first analysis of scalar implicatures based on Davidson (2014) is offered that shows that there is a difference in the calculation of scalar implicatures in LSC signers in comparison

to English speakers, which seems to be driven by the use of signing space and classifier constructions.

In general, this dissertation has contributed to the study of pragmatics in SLs, which is mostly unexplored. More specifically results of this research contribute to a better understanding of IS notions from a pragmatic perspective in LSC, and crosslinguistically in both spoken and sign languages. The fact that in LSC the marking of contrast is the same for topics and foci provides empirical support for theories that consider contrast as an independent category orthogonal to topic and focus.

7.2 Future directions

This dissertation has opened up a path for future research in many subtopics that remain unexplored, which are related to the study of focus and contrast.

It would be interesting to analyse some structures like doubling in LSC more in depth to fully understand the contexts in which this phenomenon occurs.

Moreover, other subordinate structures involving contrast, like causals, should be analysed in order to compare and broaden the description of contrast markers and the interpretation of contrast.

The analysis of modal particles would also be a natural follow-up since modal particles are claimed to "derive from focus particles as a result of a process of bleaching" (König 1991: 17). In fact, some preliminary description is presented in Navarrete-González 2020, which shows the similarities with FPs.

Finally, a perception experiment with a significant number of participants should be conducted to analyse the interpretation of exhaustivity and non-truth conditional meaning. This experimental study would serve the purpose of broadening the preliminary results presented in this dissertation and contribute to the discussion about the nature of exhaustivity in natural languages.

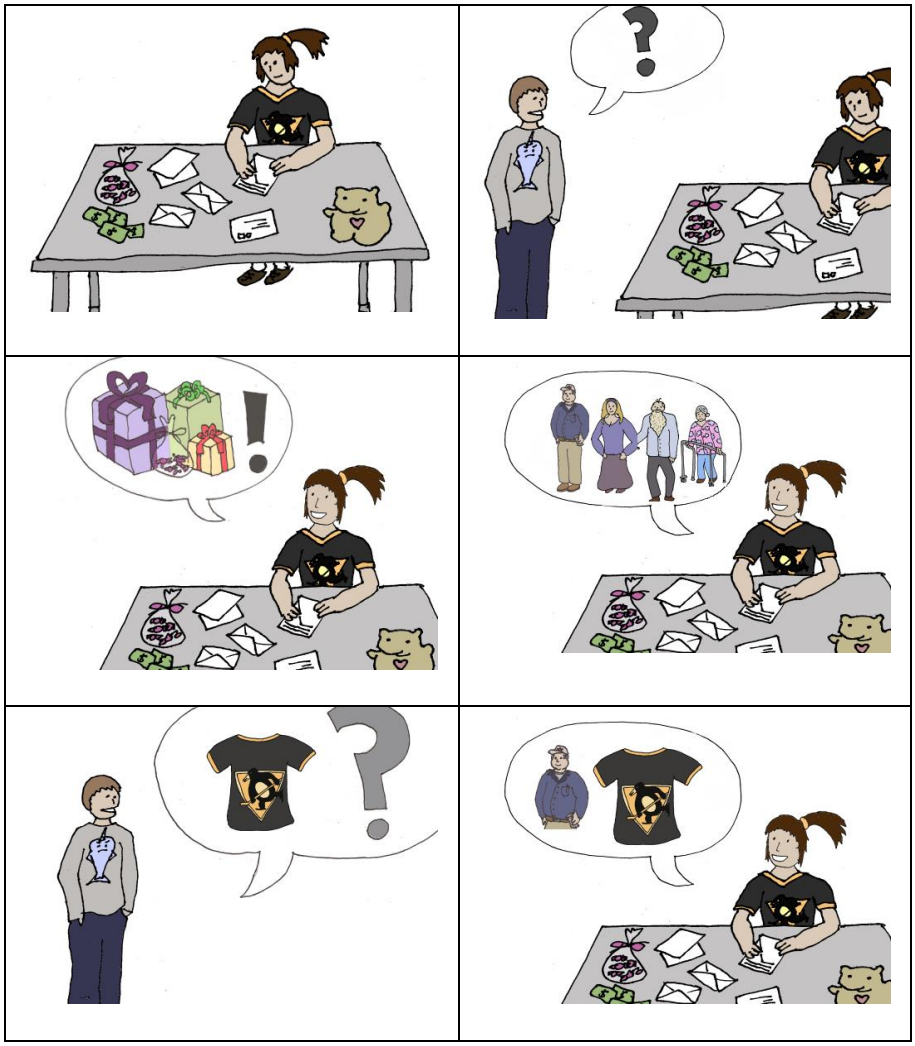
8 APPENDIX

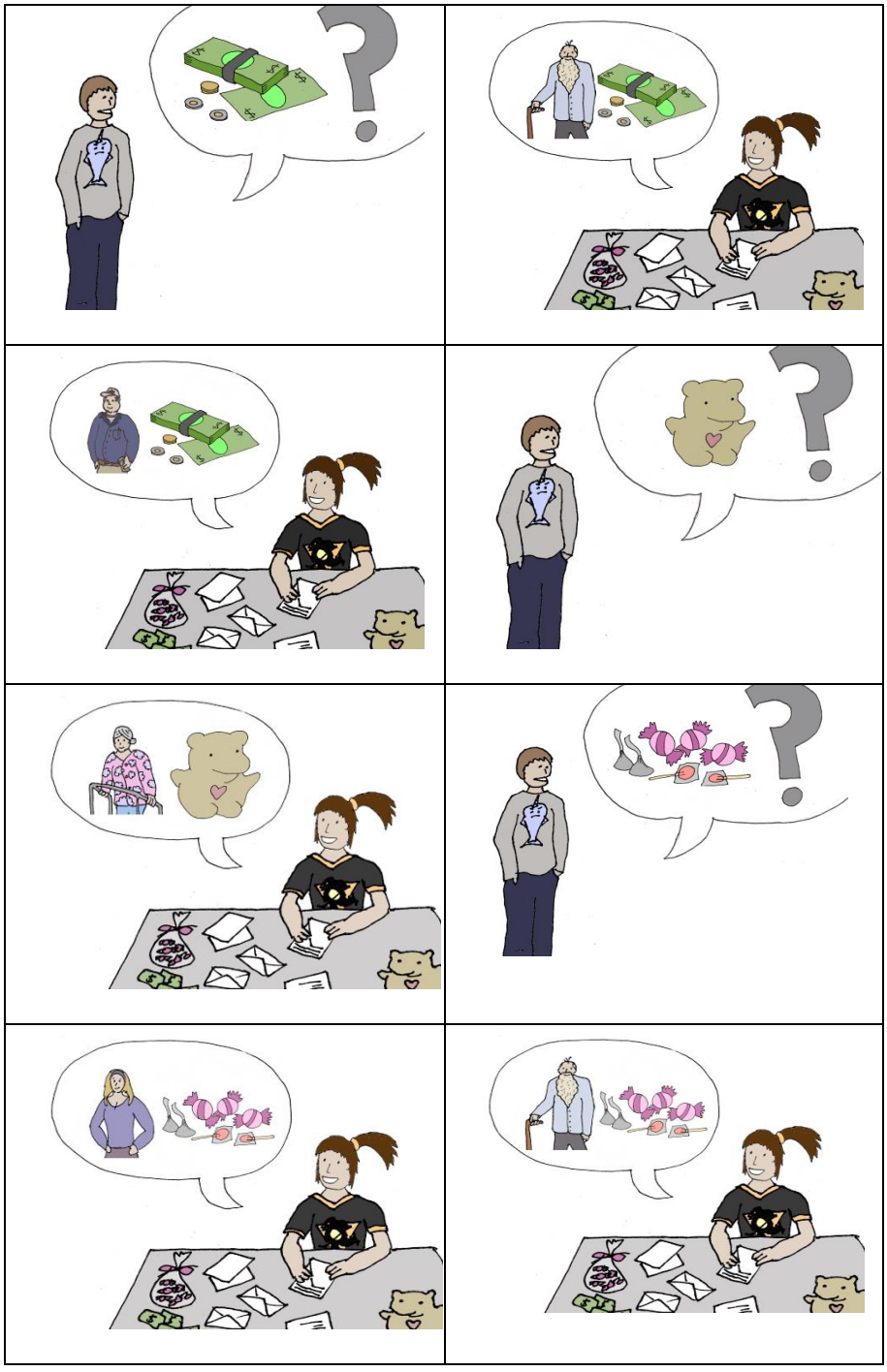
8.1 Storyboards

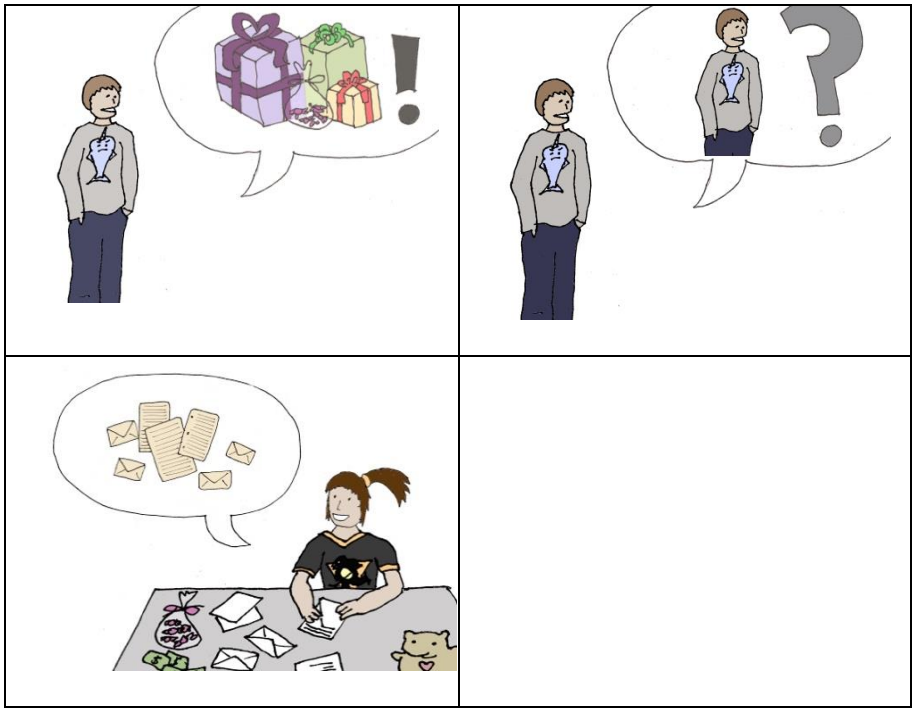
Storyboard 1. Thank-you notes

Story and illustration by Patrick Littell (2010)

Version: Agent focus.



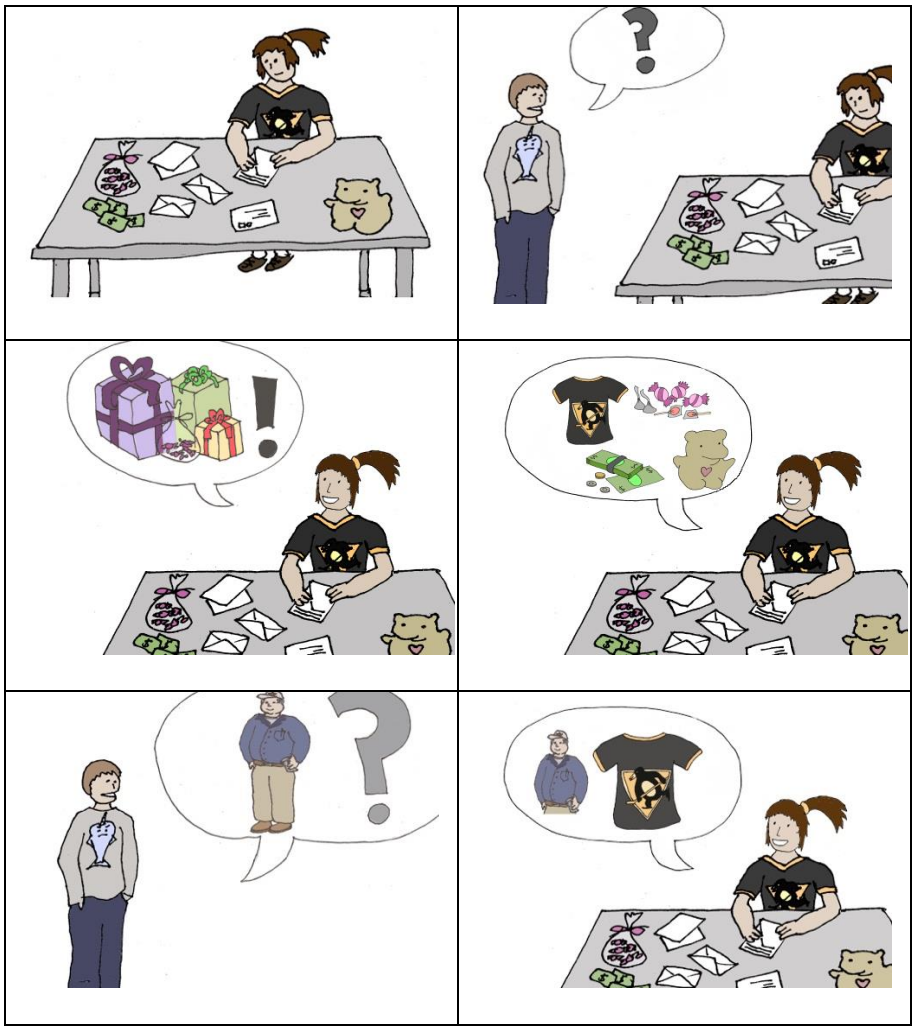


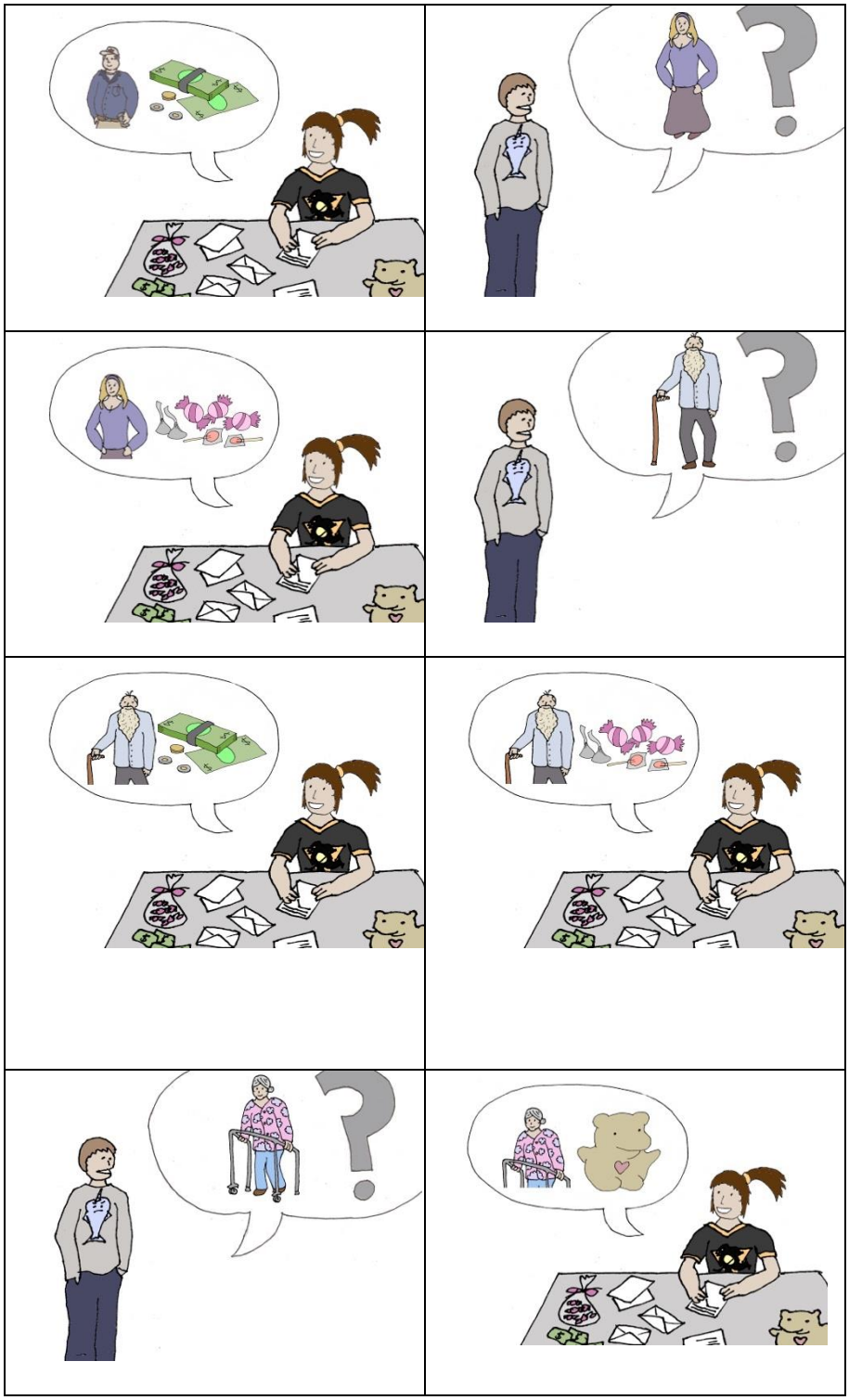


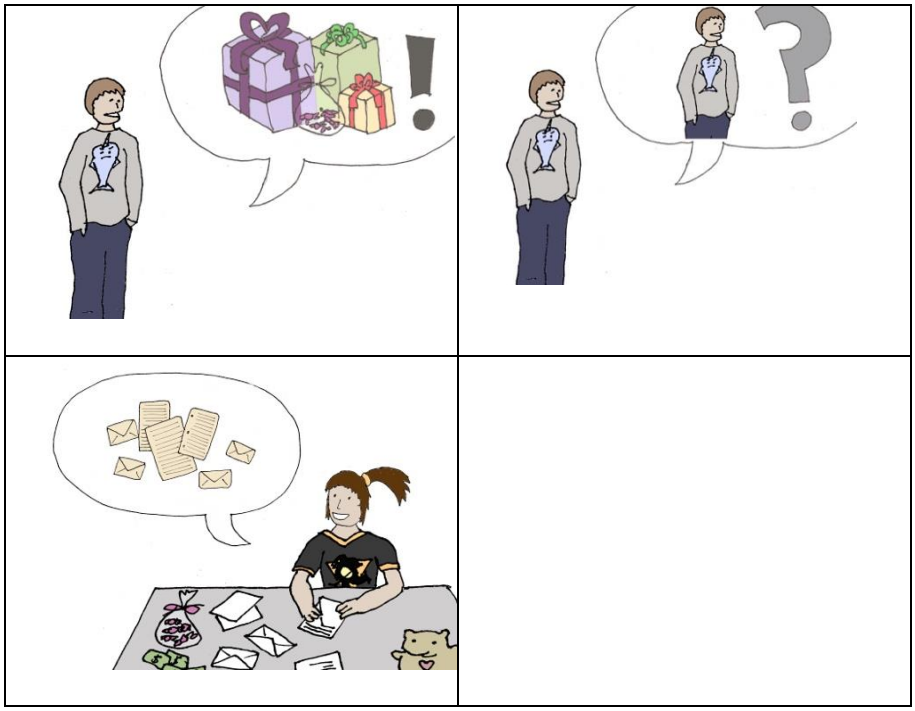
Storyboard 2. Thank-you notes

Story and illustration by Patrick Littell (2010)

Version: Theme focus.

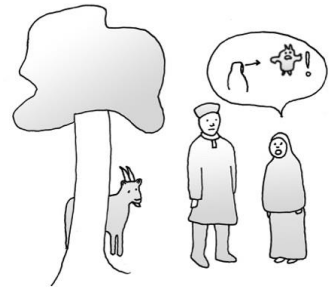
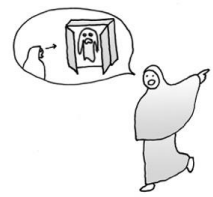


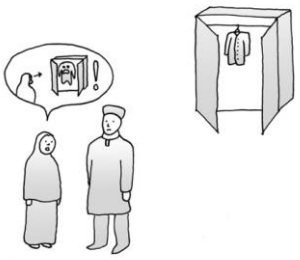
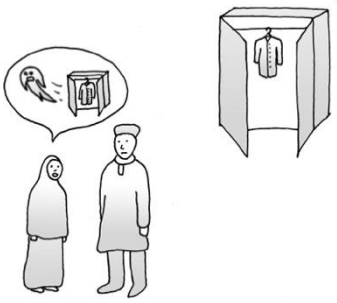
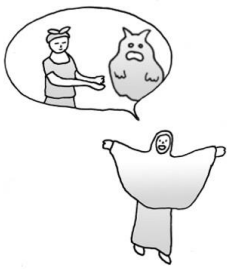
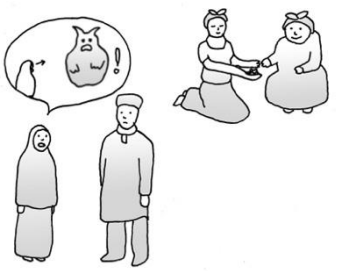


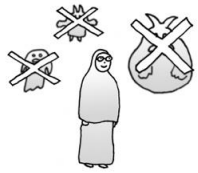


Storyboard 3. Lakka and the ghosts

Story by Mira Grubic. Illustration by Mira Grubic & Patrick (2010).

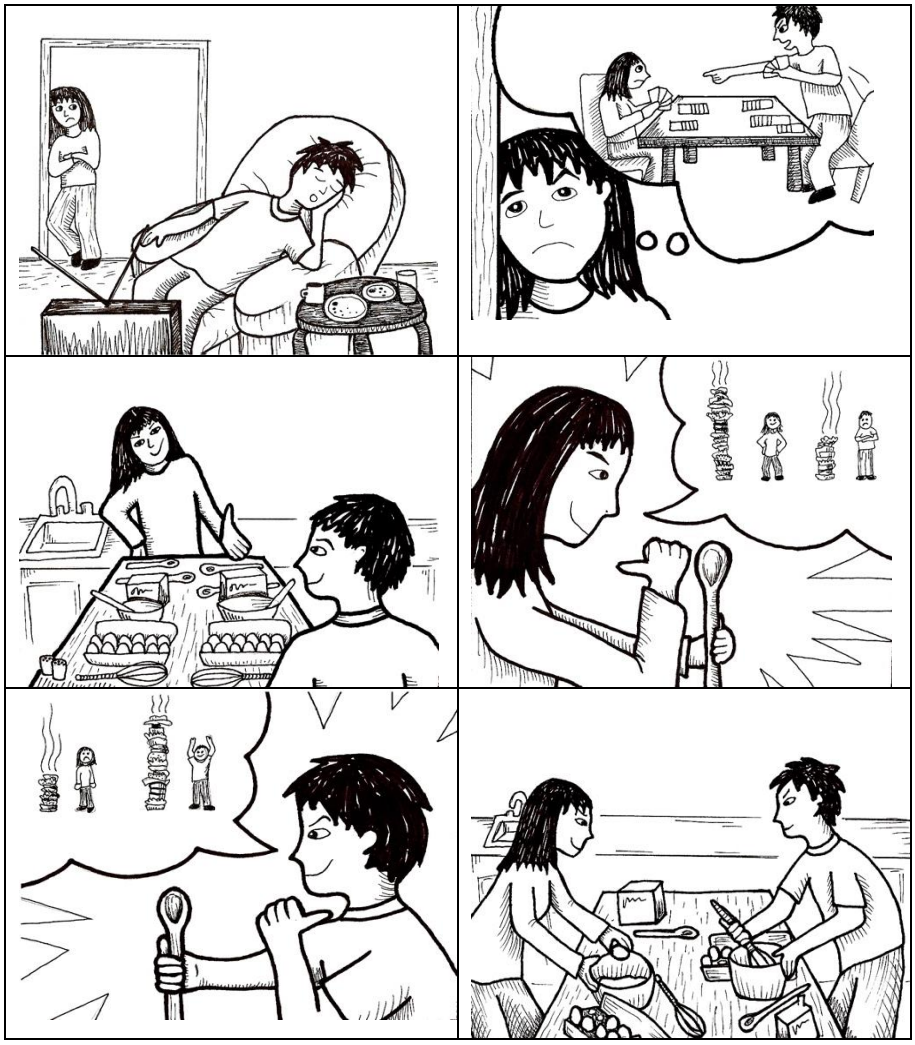
	
Lakka siempre ve fantasmas.	¡Hay un fantasma escondido detrás del árbol! — grita.
	
Su hermano le explica — ¡Eso no es un fantasma! ¡Es una cabra!	¡Era un fantasma! ¡Lo he visto!"—insiste Lakka.
	
—¡Tal vez el fantasma se está escondiendo!	Al día siguiente, Lakka grita — ¡He visto un fantasma en el armario!

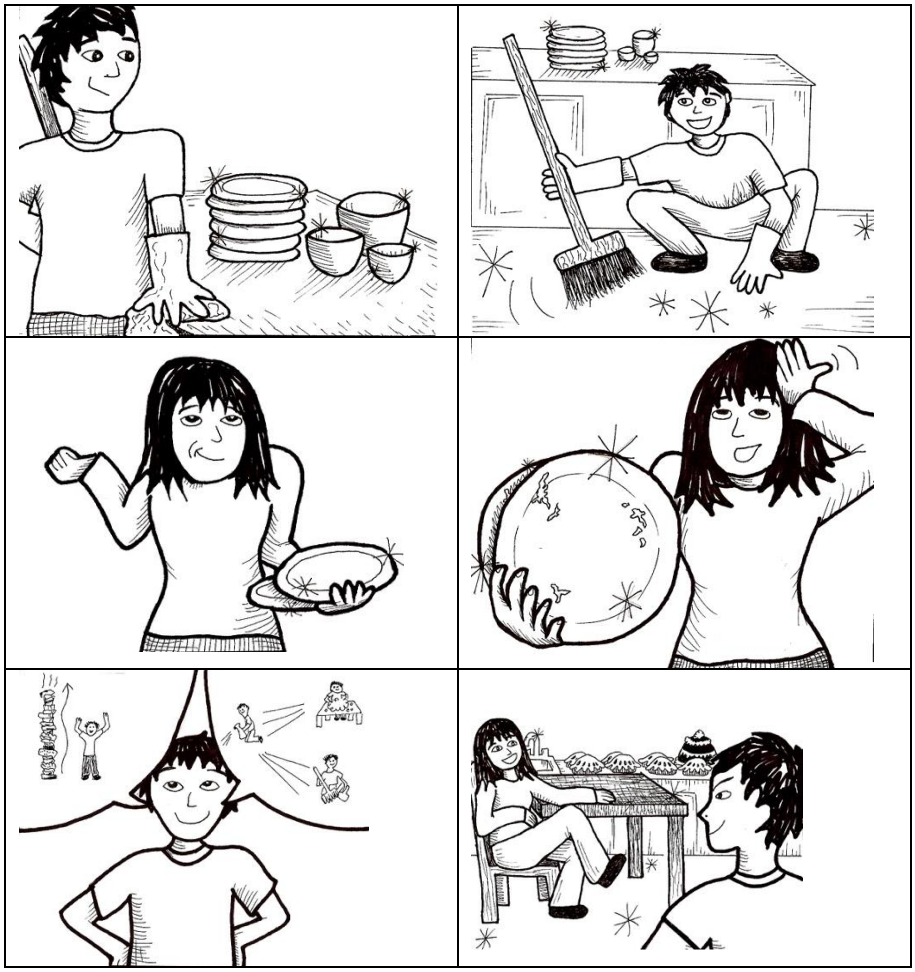
	
Su hermano le explica — ¡Eso no es un fantasma! ¡Es una camiseta!	¡Era un fantasma! ¡Lo he visto!”—insiste Lakka.
	
¡Tal vez se ha ido!	Al día siguiente, Lakka grita — ¡Marian le está vendiendo joyas a un fantasma!
	
Su hermano le explica — ¡Eso no es un fantasma! ¡Es la amiga de Marian!	¡Era un fantasma! ¡Lo he visto!”—insiste Lakka.

	
¡Tal vez la amiga de Marian es el fantasma!	Al final su hermano la lleva a comprarse unas gafas.
	
¡Ahora Lakka ya no ve fantasmas!	

Storyboard 4. Bake-off

Story by TFS Working Group. Illustrated by Katie Sardinha (2010).





8.2 Short films

1. *Alike* by Daniel Martínez Lara & Rafa Cano Méndez (http://www.alike.es/

2. *Extinguished* by Ashley Anderson and Jacob Mann (https://www.youtube.com/watch?v=H8xRmJUf9q4)

9 REFERENCES

Aarons, Debra. 1994. *Aspects of Syntax of American Sign Language*. Boston: Boston University PhD dissertation.

Baker-Shenk, Charlotte L. 1983. *A Microanalysis of the Nonmanual Components of Questions in American Sign Language*. Berkeley: University of California PhD dissertation.

Bank, Richard, Onno Crasborn & Roeland van Hout. 2011. Variation in mouth actions with manual signs in Sign Language of the Netherlands (NGT). *Sign Language & Linguistics* 14 (2). 248–270. DOI: https://doi.org/10.1075/sll.14.2.02ban

Barberà, Gemma. 2007. La cohesió discursiva i l'espai en la llengua de signes catalana. Barcelona: Pompeu Fabra University MA thesis.

Barberà, Gemma. 2015. *The meaning of space in Sign Language: Reference, specificity and structure in Catalan Sign Language*. De Gruyter Mouton and Ishara Press: Berlin / Boston. [Revised and updated version of 2012 PhD dissertation, Barcelona: Universitat Pompeu Fabra]. DOI: https://doi.org/10.1515/9781614518815

Barberà, Gemma, Josep Quer & Santiago Frigola. 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.

Bayer, Josef. 1996. *Directionality and logical form. On the scope of focussing particles and wh-in-situ*. Dordrecht: Kluwer Academic Publishers.

Beaver, D. I., & Clark, B. Z. (2008). *Sense and Sensitivity: How Focus Determines Meaning*. *Sense and sensitivity: how focus determines meaning*. Oxford, UK: Wiley-Blackwell. http://doi.org/10.1002/9781444304176

Beaver, David, Craige Roberts, Mandy Simons & Judith Tonhauser. 2017. Questions Under Discussion: Where Information Structure Meets Projective Content. The Annual Review of Linguistics 3. 265-284. DOI: 10.1146/annurev-linguistics-011516-033952

Branchini, Chiara. 2014. *On relativization and clefting. An analysis of Italian Sign Language*. Berlin: De Gruyter Mouton and Ishara Press. DOI: https://doi.org/10.1515/9781501500008

Bross, Fabian. 2020. Encoding different types of topics and foci in German Sign Language. A cartographic approach to sign

language syntax. *Glossa: a journal of general linguistics* 5(1), p.108. DOI: https://doi.org/10.5334/gjgl.1094

Büring, D. 1997. *The meaning of topic and focus: The 59th street bridge accent*. London: Routledge.

Büring, Daniel. 2003. On D-Trees, Beans, and B-Accents. *Linguistics and Philosophy.* 26. 511-545. DOI: https://doi.org/10.1023/A:1025887707652

Büring, Daniel. 2012. Focus and intonation. *Routledge Companion to the Philosophy of Language. London: Routledge*, 103–115.

Büring, Daniel & Katharina Hartmann. 2001. The syntax and semantics of focus-sensitive particles in German. *Natural Language and linguistic theory* 19. 229-281.

Büring, Daniel & Manuel Križ. 2013. It's that, and that's it! Exhaustivity and homogeneity presuppositions in clefts (and definites). Semantics and Pragmatics, 6(6), 1–29. DOI: http://doi.org/10.3765/sp.6.6

Calderone, Chiara. 2020. *Can you retrieve it? Pragmatic, morpho-syntactic and prosodic features in sentence topic types in Italian Sign Language (LIS)*. Venice: Università Ca'Foscari PhD dissertation.

Caponigro, Ivano & Kathryn Davidson 2011. Ask, and tell as well: Question-Answer Clauses in American Sign Language. *Natural Language Semantics*. 19(4). 323-371. DOI: 10.1007/s11050-011-9071-0.

Chafe, Wallace. 1976. Givenness, contrastiveness, definiteness, subjects, topics and point of view. In C. N. Li (ed.), *Subject and topic*, 27-55. New York: Academic Press.

Crasborn, Onno & Els van der Kooij. 2013. The phonology of focus in Sign Language of the Netherlands. *Journal of Linguistics* 49(3). 515-565. DOI: https://doi.org/10.1017/S0022226713000054

Dachkovsky, Svetlana. 2008. Facial expression as intonation in Israeli Sign Language: the case of neutral and counterfactual conditionals. In Quer, J. (ed.), *Signs of the Time. Selected Papers from TISLR 8*. Signum, Seedorf, 61-82.

Dachkovsky, Svetlana & Wendy Sandler. 2009. Visual intonation in the prosody of a sign language. *Lang. Speech* 52 (2/3). 287-314.

Davidson, Kathryn. 2013. 'And' or 'or': General use coordination in ASL. Semantics & Pragmatics Volume 6, Article 4: 1–44, 2013 DOI: http://dx.doi.org/10.3765/sp.6.4

Davidson, Kathryn. 2014. Scalar implicatures in a signed language. *Sign Language & Linguistics* 17. 1–19.

De Cesare, Anna-Maria. 2014. Cleft constructions from a crosslinguistic perspective. Towards an operational taxonomy. *Frequency, Forms and Functions of Cleft Constructions in Romance and Germanic.* De Gruyter Mouton. 9-48

De Veaugh-Geiss, Joseph P., Malte Zimmermann, Edgar Onea & Anna-Christina Boell. 2015. Contradicting (not-)at-issueness in exclusives and clefts: An empirical study. *Proceedings of SALT 25*. 373-393.

Dik, Simon C. 1989. *The Theory of Functional Grammar. Part 1: The Structure of the Clause*. Dordrecht: Foris.

Emmorey, Karen. 2002. *Language, Cognition, and the Brain: Insights from Sign Language.* Mahwah, NJ: Erlbaum. DOI: https://doi.org/10.1017/S0272263104393058

Esteve-Gibert, Núria, Joan Borràs-Comes, Eli Asor, Marc Swerts & Pilar Prieto. 2017. The timing of head movements: the role of prosodic heads and edges. *The Journal of the Acoustical Society of America* 141. 4727. DOI: 10.1121/1.4986649

Esteve-Gibert, Núria & Pilar Prieto. 2013. Prosodic Structure Shapes the Temporal Realization of Intonation and Manual

Gesture Movements. *Journal of Speech, Language and Hearing Research* 56. 850-864.

Féry, Caroline & Ruben Stoel. 2006. Gradient perception of intonation. In Fanselow, Gisbert, Caroline Féry, Matthias Schlesewsky & Ralf Vogel (eds.), *Gradience in Grammar: Generative perspectives*, 145-166. Oxford University Press. DOI:10.1093/acprof:oso/9780199274796.003.0008

Féry, Caroline. 2008. Information Structure Notions and the Fallacy of Invariant Correlates. *Acta Linguistica Hungarica* 55(3-4). 361-379. DOI: 10.1556/ALing.55.2008.3-4.10

Fery, Caroline & Shinichiro Ishihara (eds.). 2016. *The Oxford Handbook of Information Structure*. Oxford University Press.

Firbas, Jan. 1964. On Defining the Theme in Functional Sentence Perspective. *Travaux Linguistiques de Prague* 1. 267-280.

Firbas, Jan. 1966. Non-thematic subjects in Contemporary English. *Travaux Linguistiques de Prague* 2. 239-256.

Frey, Werner. 2009. Contrast and movement to the German prefield. In Valeria Molnár & Susanne Winkler (eds.). *The Arquitecture of Focus*. 235-264. Berlin: De Gruyter Mouton. DOI: 10.1515/9783110922011.235

Givón, Talmy. 1983. Topic Continuity in Discourse: An Introduction. In Givón, Talmy (ed.), *Topic Continuity in Discourse: A Quantitative Cross-language Study*. Amsterdam: John Benjamins. 1-41.

Goodall, Grant. 1987. *Parallel Structures in Syntax: Coordination, Causatives and Restructuring*. Cambridge: Cambridge University Press.

Gökgöz, Kadir, Ksenia Bogomolets, Lyn Tieu, Jeffrey L. Palmer & Diane Lillo-Martin. 2016. Contrastive focus in children acquiring English and ASL: cues of prominence. *Proceedings of the 6th Conference on Generative Approaches to Language Acquisition North America (Galana 2015)*. 13–23.

Gundel, Jeanette. 1974. *The role of topic and comment in linguistic theory*. Texas: University of Texas dissertation.

Gundel, Jeanette & Thorstein Fretheim. 2004. Topic and Focus. In Laurence R. Horn & Gregory Ward (eds.). *The Handbook of Pragmatics*, 175-196. Oxford: Blackwell Publishing Ltd. DOI: https://doi.org/10.1002/9780470756959.ch8

Gutiérrez-Bravo. 2006. *Structural markedness and syntactic structure: A study of word order and the left periphery in Mexican Spanish*. Routledge.

Grubic, Mira. 2015. *Focus and alternative sensitivity in Ngamo (West-Chadic)*. Potsdam: University of Potsdam dissertation.

Liliane Haegeman. 2003. *The syntax of adverbial clauses and its consequences for topicalisation*. 61-90.

Halliday, Michael A.K. 1967-68. Notes on transitivity and Theme in English. *Journal of Linguistics 3.* 37-81, 199-244, 179-216.

Happ, Daniela & Marc-Oliver Vorköper. 2006. *Deutsche Gebärdensprache. Ein Lehr- und Arbeitsbuch*. Frankfurt: Fachhochschulverlag.

Hauser, Charlotte. 2018. Question-answer pairs: the help of LSF. *Proceedings of the Formal and Experimental Advances in Sign language Theory Conference Vol. 2.* 44-55.

Hartmann, Katharina. 2000. *Right node raising and gapping: Interface conditions on prosodic deletion*. John Benjamins.

Herrmann, Annika. 2012. Prosody in German Sign Language. In Prieto, P., Elordieta, G. (eds.), *Prosody and Meaning*. Berlin: De Gruyter Mouton. 349-380.

Herrmann, Annika. 2013. *Modal and Focus Particles in Sign Languages. A crosslinguistic study*. Berlin: De Gruyter Mouton.

Herrmann, Annika. 2015. The marking of information structure in German Sign Language. *Lingua* 165, 277-297. DOI: https://doi.org/10.1016/j.lingua.2015.06.001

Hockett, Charles F. 1958. *A Course in Modern Linguistics*. New York: Macmillan.

Horn, Laurence R. 1972. On the Semantic Properties of Logical Operators in English- Los Angeles: UCLA PhD dissertation.

Horn, Laurence R. 1981. Exhautiveness and the semantics of clefts. *North East Linguistic Society* 11. 125-142.

Horn, Laurence R. 1984. Toward a new taxonomy for pragmatic inference: Q-based and R-based implicature. In Schiffrin, Deborah (ed.), Meaning, Form, and Use in Context: Linguistic Applications. 11–42. Washington: Georgetown University Press.

Horn, Laurence. 2004. Implicature. In Horn, Laurence R. & Gregory Ward (eds.), *The Handbook of Pragmatics*. 3–28. Oxford: Blackwell.

Izutsu, Mitsuko Narita. 2008. Contrast, concessive, and corrective: Toward a comprehensive study of opposition relations. *Journal of Pragmatics* 40. 646-675.

Jacobs, Joachim. 1983. *Fokus und Skalen*. Tübingen: Niemeyer.

Jarque, Maria Josep, Maria I. Massone, M. Pilar Fernández-Viader, Marta Bosch & Josep Maria Segimon. 2004. Orden básico de constituyentes en la lengua de signos de Catalunya. *Actas del VI Congreso de Lingüística General: Santiago de Compostela* 2(1).

Kaplan, Jeffrey P. 1984. Obligatory 'too' in English. *Language* 60. 510-18

Kartunnen, Lauri. 1971. Implicative verbs. *Language* 47(2). 340-358. DOI: https://doi.org/10.2307/412084

Kimmelman, Vadim. 2013. Doubling in RSL and NGT: a pragmatic account. In M. Balbach, L. Benz, S. Genzel, M. Grubic, A. Renans, S. Schalowski, M. Stegenwallner & A. Zeldes (eds.) *Information Structure: Empirical Perspectives on Theory* 17. Interdisciplinary Studies on Information Structure: ISIS: working papers of the SFB 632. 99-118. Potsdam: Universitätsverlag Potsdam.

Kimmelman, Vadim. 2014. *Information Structure in Russian Sign Language and Sign Language of the Netherlands*. Amsterdam: University of Amsterdam dissertation.

Kimmelman, Vadim & Roland Pfau. 2016. Information Structure in Sign Languages. In Caroline Féry & Shinichiro Ishihara (eds.). *The Oxford Handbook of Information Structure*, 814-834. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199642670.013.001

Kimmelman, Vadim & Liliane Vink. 2017. Question-answer pairs in Sign Language of the Netherlands. *Sign Language Studies* 17(4). 417-449.

Kimmelman, Vadim & Roland Pfau. 2021. Information structure: Theoretical perspectives. In J. Quer, R. Pfau & A. Herrmann (eds.) *The Routledge Handbook of Theoretical and Experimental Sign Language Research*. 591-413. Routledge.

König, Ekkehard. 1991. *The Meaning of Focus Particles: A Comparative Perspective*. Theoretical Perspectives. London / New York: Routledge.

Krifka, M. 1992a. A framework for focus-sensitive quantification. In *Semantics and Linguistic Theory* 2. 215–236.

Krifka, Manfred. 1992b. A Compositional Semantics for Multiple Focus Constructions. *Informationsstruktur und Grammatik*. (ed. Joaquim Jacobs). VS Verlag für Sozialwissenschaften, Wiesbaden. DOI: 10.1007/978-3-663-12176-3_2

Krifka, Manfred. 2007. Basic notions of information structure. In Caroline Féry & Krifka, Manfred (eds.). *Interdisciplinary Studies of Information Structure* 6, 13-56. Potsdam: Universitätsverlag.

Lambrecht, Knud. 1994. Information Structure and Sentence Form. Topic, Focus and the Mental Representations of Discourse Referents. Cambridge: Cambridge University Press.

Lambrecht, Knud. 2001. A framework for the analysis of cleft constructions. *Linguistics*, *39*(3), 463–516.

Legeland, Iris, Katharina Hartmann & Roland Pfau. 2018. Word order asymmetries in NGT coordination: The impact of Information Structure. Talk presentated at *FEAST 2018*, June 18-10, Venice (Italy).

Levinson, Stephen. 1983. *Pragmatics*. Cambridge: Cambridge University Press.

Liberman, Mark & Janet Pierrehumbert. 1984. Intonational Invariance under Changes in Pitch Range and Length. In M. Aronoff and R. Oehrle (eds.) *Language Sound Structure*. Cambridge, MA: MIT Press. 157-223.

Lillo-Martin, Diane & Ronice Müller de Quadros. 2008. Focus Constructions in American Sign Language and Língua de

Sinais Brasileira. In Josep Quer (ed.), *Signs of the Time: Selected Papers from TISLR 2004*, 161-176. Seedorf, Germany: Signum Verlag.

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

Mayol, Laia. 2010. Contrastive Pronouns in Null Subject Romance Languages. *Lingua* 120 (10). 2497-2514. DOI: 10.1016/j.lingua.2010.04.009

Mayol, Laia & Gemma Barberà. 2018. Anaphoric strategies across language modalities: A comparison between Catalan and Catalan Sign Language (LSC). *Journal of Psycholinguistic Research*, 47. 431-447. DOI: 10.1007/s10936-017-9540-9.

Mathesius, Vilem. 1975. *A Functional Analysis of Present Day English on a General Linguistic Basis*. The Hague and Paris: Mouton.

Matthewson, Lisa. 2004. On the Methodology of Semantic Fieldwork. *International Journal of American Linguistics* 70(4). 369-415. DOI: https://doi.org/10.1086/429207

McNally, Louise. (1998). On the Linguistic Encoding of Information Packaging Instructions. In P. Culicover & L.

McNally (Eds.), *The Limits of Syntax. Journal of Linguistics* (Vol. 29, pp. 161– 183). New York: Academic Press.

Molnár, Valéria. 2002. Contrast – from a contrastive perspective. In H. Hallelgar, S. Johansson, B. Behrens, C. Fabricius Hansen (eds.). *Information Structure in a Cross-Linguistic Perspective*. 147-161. DOI: https://doi.org/10.1163/9789004334250_010

Molnár, Valeria. 2009. On different kinds of contrast. In Valeria Molnár & Susanne Winkler (eds.), *The Arquitecture of Focus,* 197-234. Berlin: De Gruyter Mouton.

Morales-López, Esperanza, César Reigosa-Varela & Nancy Bobillo-García. 2012. Word order and informative functions (topic and focus) in Spanish Signed Language utterances. *Journal of Pragmatics* 44. 474-489.

Mosella, Marta. 2012. *Les construccions relatives en llengua de signes catalana (LSC).* Barcelona: Pompeu Fabra University dissertation.

Navarrete-González, Alexandra. 2016. *Focus constructions in Catalan Sign Language (LSC).* Barcelona: Pompeu Fabra University MA thesis.

Navarrete-González, Alexandra. 2019. The notion of focus and its relation to contrast in Catalan Sign Language (LSC). *Sensos-e* 6(1), 18-40. DOI: https://doi.org/10.34630/sensos-e.v6i1.2565

Navarrete-González, Alexandra. 2020. Lexicon: 3.3.3. Modality markers. In Quer Josep & Gemma Barberà (eds.), *A Grammar of Catalan Sign Language (LSC).* 1st ed. (SIGN-HUB Sign Language Grammar Series). (http://sign-hub.eu/grammars).

Navarrete-González 2021. The expression of contrast in Catalan Sign Language (LSC). *Glossa: a journal of general linguistics* 6(1). 29. DOI: https://doi.org/10.5334/gjgl.1102

Navarrete-González, Alexandra & Giorgia Zorzi. 2019. The role of contrast in coordination and subordination in Catalan Sign Language (LSC). Invited talk at je *Seminar of the Basque Research Group of Theoretical Linguistics (HiTT).* Euskal Herriko Unibertsitatea UPV/EHU: Vitoria-Gasteiz.

Navarrete-González, Alexandra & Gemma Barberà. 2021. Meaning beyond signs: Implicatures and presupposition in Catalan Sign Language (LSC). Revista d'Estudis Catalans / Zeitschrift für Katalanistik, 34. 143-164.

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

Nonato, Rafael. 2014. *Clause chaining, switch reference and coordination*. Cambridge, MA: MIT dissertation.

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

Perniss, Pamela. 2007. *Space and iconicity in German Sign Language (DGS)*. Nijmegen: Radboud University Nijmegen dissertation.

Petronio, Karen. 1993. Clause Structure in ASL. Ph.D. Dissertation. University of Washington.

Petronio, Karen & Diane Lillo-Martin. 1997. Wh-Movement and the Position of Spec-CP: 20 Evidence from American Sign Language. *Language*, 73. 18-57.

Pfau, Roland & Josep Quer. 2010. Nonmanuals: their grammatical and prosodic roles. In Brentari, Diane (ed.), *Sign Languages*, 381-402. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511712203.018

Pierrehumbert, Janet. 1980. The phonology and Phonetics of English Intonation. Cambridge: MIT PhD dissertation.

Potts, Christopher. 2005. The logic of conventional implicature. *Oxford Studies in Theoretical Linguistics* 7. Oxford: Oxford University Press.

Potts, Christopher. 2012. Conventional implicature amd expressive content. In Claudia Maienborn, Klaus vin Heusinger & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning* vol. 3. 2516-2535.

Potts, Christopher. 2013. Presupposition and implicature. In Lappin, Shalom & Chris Fox (eds.), *The Handbook of Contemporary Semantic Theory*, 2nd edition. 168–202. Oxford: Wiley-Blackwell.

Prince, Ellen. 1981. Toward a taxonomy of given-new information. In Cole, Peter (ed.), *Radical* pragmatics, 223-255. New York: Academic Press.

Prince, Ellen. 1985. Fancy syntax and shared knowledge. Journal of Pragmatics 9(1). 65- 81.

Progovac, Ljiljana. 1998. Structure for Coordination. Part I and II.' *Glot International* 3.7: 3-6 and 3.8: 3-9.

Quadros, Ronice Müller de. 1999. *Phrase structure of Brazilian Sign Language*. Portenon, Porto Allegre: Pontifícia Universidade Católica do Rio Grande do sul dissertation.

Quadros, Ronice Müller de. 2003. Phrase structure of Brazilian Sign Language. In *Crosslinguistic perspectives in sign language research. Selected papers from TISLR* 2000, 141-162. Signum Press: Hamburg.

Quer, Josep. 2016. Intonation and grammar in the visual-gestural modality: A case study on conditionals in Catalan Sign Language (LSC). In Meghan E. Armstrong, Nicholas Henriksen and Maria del Mar Vanrell (eds.) *Intonational Grammar in Ibero-Romance: Approaches across linguistic subfields*, 369-386. John Benjamins. DOI: https://doi.org/10.1075/ihll.6.17que

Quer, Josep. 2017. Els projectes de codificació de la Llengua de Signes Catalana (LSC). *Estudis Romànics* (39). 445-452. DOI 10.2436/20.2500.01.234.

Quer, Josep et al. 2005. *Gramàtica bàsica de la llengua de signes catalana*. DOMAD. Federació de Persones Sordes de Catalunya.

Reinhart, Tanya. 1981. Pragmatics and linguistics: An analysis of sentence topics. *Philosophica*, 27(1). 53-94

Reis, Marga. 2005. On the syntax of so-called focus particles in German – A reply to Büring and Hartmann 2001. *Natural language and Linguistic Theory* 23. 459-483.

Renans, Agata & Joseph P. De Veaugh-Geiss (2019). Experimental Studies on it-Clefts and Predicate Interpretation. *Semantics and Pragmatics* 12(11). 1-50. DOI: http://dx.doi.org/10.3765/sp.12.11

Repp, Sophie. 2010. Defining 'Contrast' as an Information-structural Notion in Grammar. *Lingua*, 120. 1333-1345.

Repp, Sophie. 2016. Contrast: Dissecting an Elusive Information-Structural Notion and its Role in Grammar. In Féry & Ishihara (eds.), *The Oxford Handbook of Information Structure*. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199642670.013.006

Riester, Arndt, Lisa Brunetti & Kordula de Kuthy. 2018. Annotation guidelines Annotation guidelines for Questions under Discussion and information structure. In Evangelia Adamou, Katharina Haude and Martine Vanhove (eds.). *Information Structure in Lesser-described Languages: Studies in prosody and syntax.* [Studies in Language Companion Series 199]. 403–444. DOI: https://doi.org/10.1075/slcs.199.14rie

Roberts, Craige. 2006. *Only*, presupposition and implicature. Submitted to *Journal of Semantics*.

Roberts, Craige. 2012. Information structure in discourse: Towards an integrated formal theory of pragmatics. *Semantics and Pragmatics* 5(6): 1-69. (1996 version: OSU Working Papers in Linguistics 49. The Ohio State University.)

Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics: An International Journal of Semantics and Its Interfaces in Grammar*, *1*(1), 75–116. http://doi.org/10.1007/BF02342617

Rooth, Mats. 2016. Alternative Semantics. In Féry & Ishihara (eds.), *The Oxford Handbook of Information Structure*. Oxford: Oxford University Press. DOI: 10.1093/oxfordhb/9780199642670.013.19

Rudolph, Elisabeth. 1996. Contrast: adversative and concessive relations and their expressions in English, German, Spanish, Portuguese on sentence and text level. Berlin: Walter de Gruyter

Sandler, Wendy. 2012. Visual prosody. In Roland Pfau, Markus Steinbach & Bencie Woll (eds.), *Sign Language – An International Handbook*, 55-76. Berlin: Mouton de Gruyter.

Sandler, Wendy & Diane Lillo-Martin. 2006. *Sign language and linguistic universals*. Cambridge: Cambridge University Press.

Schlenker, Philippe & Jonathan Lamberton. 2012. Formal indices and iconicity in ASL. In: Aloni, Maria et al. (eds.), *Logic, language and meaning: 18th Amsterdam Colloquium*. Heidelberg: Springer. 1–11.

Schlenker, Philippe & Mirko Santoro. 2013. Iconic variables. *Linguistics & Philosophy* 36. 91–149.

Schlenker, Philippe, Valentina Aristodemo, Ludovic Ducasse, Jonathan Lamberton & Mirko Santoro. 2016. The Unity of Focus: Evidence from Sign Language (ASL and LSF). *Linguistic Inquiry* 47 (2). 363-381.

Skopeteas, Stavros, Ines Fiedler, Sam Hellmuth, Anne Schwarz, Ruben Stoel, Gisbert Fanselow, Caroline Féry & Manfred Krifka. 2006. Questionnaire on Information Structure: Reference Manual. In *Quantificational Variability Effects with Plural Definites, Interdisciplinary Studies on Information Structure (ISIS) 4.* Potsdam: Universitätsverlag Potsdam.

Stalnaker, Robert. 2002. Common Ground. *Linguistics and Philosophy* 25. 701-721.

Stechow, Armin von. 1990. Focusing and backgrounding operators. *Discourse Particles* 6. 37– 84.

Stechow, Armin von. 1991. Current Issues in the Theory of Focus. In A. von Stechow & D. Wunderlich (eds.), *Semantik. Ein internationales Handbuch der zeitgen{ö}ssischen Forschung.* 804–824. Berlin: Walter De Gruyter.

Sze, Felix. 2008. Topic constructions in Hong Kong Sign Language. Bristol: University of Bristol dissertation. DOI: https://doi.org/10.1075/sll.12.2.07sze

Sze, Felix. 2011. Nonmanual markings for topic constructions in Hong Kong Sign Language. *Sign Language & Linguistics* 14(1). 115-147. DOI: https://doi.org/10.1075/sll.14.1.07sze

Sze, Felix. 2015. Is Hong Kong Sign Language a topic-prominent language? *Linguistics* 53(4). 809-876. DOI: https://doi.org/10.1515/ling-2015-0021

Tonhauser, J., Beaver, D., Roberts, C., & Simons, M. (2013). Toward a Taxonomy of Projective Content. *Language*, *89*(1), 66–109. http://doi.org/10.1353/lan.2013.0001

Umbach, Carla. 2004. On the notion of contrast in information structure and discourse structure. *Journal of Semantics*, 21(2). 155-175. DOI: https://doi.org/10.1093/jos/21.2.155

Vallduví, Enric. 1990. *The role of plasticity in the association of focus and prominence*. University of Pennsylvania/University of Southern California.

Vallduví, Enric. 1992. *The informational component*. Philadelphia: University of Pennsylvania dissertation.

Vallduví, Enric. 1995. *Aspects of information structure in a dynamic setting*. Centre for Cognitive Science. University of Edinburgh.

Vallduví, Enric. 2016. Information structure. In Maria Aloni & Paul Dekker (eds.), The Cambridge handbook of formal semantics 728–755. Cambridge: Cambridge University Press. DOI: https://doi. org/10.1017/CBO9781139236157.024

Vallduví, Enric & Elisabet Engdahl. 1996. The linguistic realization of information packaging. *Linguistics* 34. 459-519.

Vallduví, Enric & Maria Vilkuna. 1998. On rheme and kontrast. *The Limits of Syntax*. New York: Academic Press. 79-108.

van der Kooij, Els, Onno Crasborn & Wim Emmerik. 2006. Explaining prosodic body leans in Sign Language of the Netherlands: Pragmatics required. Journal of Pragmatics 38(10). 1598-1614. DOI: https://doi.org/10.1016/j.pragma.2005.07.006

Vanrell, Maria del Mar & Olga Fernández Soriano. 2013. Variation at the interfaces in Ibero-Romance. Catalan and Spanish prosody and word order. *Catalan Journal of Linguistics*, 12. 253-282. DOI: https://doi.org/10.5565/rev/catjl.63

Volk, Elisabeth & Annika Herrmann. 2021. Discourse particles – Theoretical perspectives. In Josep Quer, Roland Pfau & Annika Herrmann (eds.) *The Routledge Handbook of Theoretical and Experimental Sign Language Research*. London: Routledge. 480-499

Waleschkoski, Eva. 2009. Focus in German Sign Language. Poster presented at the *NISL workshop on Non-manuals in Sign Languages*. Goethe-Universität Frankfurt am Main.

Wilbur, Ronnie. 1994. Foregrounding structures in American Sign Language. *Journal of Pragmatics*, 22. 647-672.

Wilbur, Ronnie. 1996. Evidence for the function and structure of wh-clefts in ASL. *International review of sign linguistics* 1. 209-257.

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

Wilbur, Ronnie. 1999. Stress in ASL: empirical evidence and linguistic issues. *Language and Speech*, 42(2–3). 229–250. DOI: 10.1177/00238309990420020501

Wilbur, Ronnie. 2012. Information Structure. In Roland Pfau, Markus Steinbach & Bencie Woll (eds.), *Sign Language. An International* Handbook, 462–489. De Gruyter Mouton.

Wilbur, Ronnie B. & Cynthia G. Patschke. 1998. Body leans and the marking of contrast in American Sign Language. Journal of Pragmatics 30(3). 275–303. DOI: https://doi.org/10.1016/S0378- 2166(98)00003-4

Zimmerman, Malte & Constantine Kouankem. 2013. Contrastive FOCUS and verb doubling in Medumba. Talk at Universiteit van Amsterdam.

Zimmerman, Malte & Edgar Onea. 2011. Focus marking and focus interpretation. *Lingua* 121. 1651-1670.

Zorzi, Giorgia. 2018. *Coordination and gapping in Catalan Sign Language (LSC)*. Barcelona: Pompeu Fabra University dissertation.

Zwitserlood, Inge. 2012. Classifiers. In Roland Pfau, Markus Steinbach & Bencie Woll (eds.), *Sign Language: An International Handbook*. 158–186. Mouton de Gruyter: Berlin.