Chapter 3
A morpheme on spatial planes

The structured use of space in ASL is nowhere more evident than in the means by which verbs reflect their arguments [...]. What is reflected is not objectively who or what is referred to by the subject of the verb but rather whether in the discourse situation the subject is the speaker, the person or persons addressed, or some subject of the discourse, not restricted to the participants in it.

Klima and Bellugi (1979: 276)

3.1. Introduction

This chapter is devoted to the description and analysis of the use of signing space by focusing on non-descriptive locations. Unlike descriptive locations, which make a freer use of space, non-descriptive locations are categorically articulated in the different areas within the three spatial planes that are standardly projected with respect to the body of the signer. Signs directed to the different parts of spatial planes contribute to the establishment of a grammatical morpheme that consists in an abstract point in space. The direction where the physical point in space is established is completely irrelevant. What is relevant is the fact that a point is chosen at all. This spatial point is categorically defined and interpreted within the linguistic system (Wilbur 2008). I argue that this abstract point in space functions as a clitic pronoun (Fischer 1975). In Catalan Sign Language (LSC), this clitic pronoun can be abstractly established in different parts of the three spatial planes. Yet, only the two directions of the frontal plane, namely upper and lower, are grammatically relevant and distinctively interpreted. [lower] is the default feature which the majority of signs are attached to. In contrast, the upper direction of signs is instantiated by the feature [upper], which is the marked location established on the upper frontal plane denoting particular meanings, such as locatives, hierarchical relations, non-specificity and non-presence in the immediate physical context. Moreover, the two directions on the horizontal plane, namely [ipsilateral] and [contralateral], are discursively relevant in that they codify contrastive topics. Overall, the chapter provides a unified treatment of different linguistic phenomena that have been hitherto described
separately in the sign language literature, namely hierarchical relations, locatives, contrast, as well as other aspects that have not yet been the subject of research neither in LSC nor in other signed languages, such as the encoding of specificity. As shown, the features found in two of the three spatial planes as described in the phonological literature are also relevant beyond the sentence level and they serve distinctive discourse functions.

This chapter is structured as follows. §3.1 presents the analysis that this book follows in considering the spatial morpheme localised on the planes to be a clitic. §3.2 presents the set of mechanisms employed in LSC to establish this spatial morpheme and hence to localise entities in space. §3.3 is a detailed description of the three spatial planes used in non-descriptive locations in LSC. After this overall description, §3.4 outlines the matrix of features that spatial locations incorporate. §3.5 briefly expands on body-anchored localisations. §3.6 summarises the main findings of the chapter.

3.2. The spatial morpheme

A question that has concerned linguists from the beginning of sign linguistics is what exactly is there in space that allows to direct index and localised signs to it (see §2.4 and §2.5). I defend that index signs and other localisation mechanisms establish a spatial location, which is in fact a spatial morpheme attached to manual and nonmanual signs. This idea has been already outlined by previous works, which have influenced and inspired the shaping of ideas of the present book. As for SL agreement, Fischer (1975) is, to the best of my knowledge, the first work to argue that points in space are cliticised pronominal forms attached to verbal roots. This view differs from the traditional and general idea that spatial locations are agreement markers of verbal inflection (see §3.2.3). Nevins (2009, 2011), following Fischer (1975), claims that agreement verbs are formed by morphemes that are cliticised to the verbal root. In syntactic terms, this view imposes a clitic-doubling analysis when the arguments of the clause are overt, as defended in Quer (2009) and Koulidobrova (2010). More specifically, Quer implements the big-Determiner Phrase (DP) hypothesis (Uriagereka 1995), whereby the DP and the clitic are generated as a single argument.

As for pronominal forms, Kegl (1976) argues that points in space precisely function as pronouns in ASL. She considers the manual index handshape pointing towards the spatial location to be an agreement marker indicator. Some years later, in her book and a paper based on it (Shephard-Kegl 1985; Kegl 1986), she argues that spatial locations are more specifically clitic
pronouns, which can be distinguished into two classes. Proclitic pronouns are established by role prominence and are always connected to the subject. Enclitic pronouns are established by coindexation and they are in complementary distribution with full pronouns. Unfortunately, Kegl did not carry on this view in further research. In fact, the idea of analysing spatial locations as clitic pronouns is not so far the mainstream view.

In a mixed type of analysis, Padden (1990) considers the spatial modification expressed on plain verbs to indicate either subject or object of the predicate to be a pronoun clitic. According to her, this differs from verb agreement articulated through verb inflection that agreement affixes represent. An important argument in her analysis is that the pronoun clitic occurring with plain verbs is not very restrictive, while person and number are highly restricted as they appear only with agreement verbs. This book follows Fischer (1975), Kegl (1976, 1986), Shephard-Kegl (1985), Padden (1990), Quer (2009), and Nevins (2011) in considering that spatial locations function as clitic pronouns. The spatial morpheme can appear across different categories, such as index signs, spatially modified signs, as well as verb inflection. According to Zwicky and Pullum (1983), this is a strong argument for a morpheme to be considered a clitic.

The establishment of a spatial morpheme form in signing space has been questioned and often bypassed by many works. The problem with spatial locations is that researchers have focused primarily on the physical point in space where index signs are directed to (see the spatial mapping view, as described in §2.4.1), thus neglecting the fact that what matters is not the exact direction in space but rather its categorical interpretation in the linguistic system. What is important is the fact that a point is chosen at all. Following Wilbur (2008), I consider that the spatial direction where index signs can be directed to consists in an abstract and unique point in space. What matters is not the exact direction where index signs are directed to, but rather the abstract end point that is expressed with the localisation of signs and that is interpreted in the grammar of the language as a categorical element, rather than a gradient one. Wilbur (2008) clearly defines it as follows:

“The morpheme is not ‘this particular point in space where the sign movement or indicator pointing just stopped’; rather it is the geometric point in space (p), which indicates an individual (x), no matter where it is made in space.”

(Wilbur 2008: 239)

Wilbur considers this morpheme to be a geometrical point that has morphological expression via agreement morphemes and end state. The relevance of
her account is that she makes precise that the direction where the physical point in space is established is completely irrelevant. What it is important is that the spatial point is categorically defined and interpreted within the linguistic system. The infinity issue (see §2.4) is thus no longer a problem, since there is one and only spatial morpheme. A unique spatial morpheme exists in the grammar of the language, which consists in an abstract point where indexical signs and other localisation mechanisms are oriented to.

I consider this final end point, represented as (p) for point in space, to be a grammatical clitic morpheme which stands for the overt manifestation of a discourse referent (see Chapter 4). It is an abstract spatial morpheme that is cliticised to the manual handshape as well as to nonmanual articulations. Moreover, it is an invariable spatial morpheme, regardless of the direction of the index sign (see Chapter 7). The so long considered underspecification slot for the location feature (Brentari 1998; Kooij 2003; Sandler 1989, among others) is here taken to be filled in by the abstract clitic (p). The matrix of features that index signs include is illustrated below, where every Greek letter corresponds to a certain feature. Importantly, the location slot has a concrete feature, namely (p), which also determines the orientation parameter of the sign.

(6) Index sign
   – Handshape: \( \alpha \)
   – Movement: \( \gamma \)
   – Orientation: \( \beta(p) \)
   – Location: point in space (p)

As shown in the subsequent sections, this abstract point in space is established by different localisation mechanisms on the three spatial planes in front of the signer’s body. However, only some areas within these spatial planes are grammatically relevant in LSC. Before delving into the description of spatial planes, the localisation mechanisms used in LSC are presented.

### 3.3. Localisation mechanisms

In Chapter 2, we saw that sign language (SL) discourse referents are associated with an area in signing space. An index sign, followed or preceded by a nominal, indicates that from that moment on the area the pointing is directed to will be associated with the referent the nominal denotes, as long as the referential framework is not shifted. An index directed to a location establishes thus a discourse referent (DR) on a determined spatial area.
Agreement verbs, index signs or eye gaze directed to that location in subsequent discourse are understood as coreferential with the corresponding DR.

Example (7) illustrates this. It is an LSC discourse fragment where the signer is talking about his son. The first time he talks about him, he utters the nominal sign for son and directs an index sign to the contralateral part (i.e. the left area in a right-handed signer, see §3.2.1). This is the first mention of the DR “son” and the index associates the nominal with the contralateral part of signing space. In the second utterance in (7), two index signs are directed to the same area and are therefore understood as coreferential.

(7) \text{IX3}_{c} \text{LAPTOP 1-OFFER-3 SON IX3}_{cl} \text{ FOR NEW 3-SELECT-3 WORK IX3}_{cl} \text{ NEED LAPTOP IX3}_{cl}.

‘I will offer this laptop to my son, because he has been selected for a new job and he needs a laptop.’

Figure 12 contains a sequence of the two index signs appearing in (7). The stills in Figure 12a correspond to the nominal sign for SON and the index sign to localise it. As we can observe in Figure 12b, corresponding to an index sign in the second sentence in (7), further mentions of the DR are expressed with a pronominal index sign directed to the same area first established.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure12.png}
\caption{First and further mention of a localised discourse referent}
\end{figure}

In the initial literature on sign language research, the process of establishing a point in space or pointing to a previously established place to refer to a person, object or location was known as indexing, or nominal establishment (Friedman 1975; Mandel 1977; Klima and Bellugi 1979; Poizner, Klima, and Bellugi 1987). The broad term “indexing” included the first association of the nominal with an area in space (i.e. first mention), as well as all
those instances used to refer back to the same DR denoted by the nominal (i.e. further mentions). Indexing is then used as an umbrella term within which two functions are included: the predicational and the anaphoric one.

As seen in §2.4, location and locus are very widely used terms. Its definition may vary according to the theoretical framework in which it is considered. From a spatial mapping perspective, it is defined as points in space standing for a projection of the referent (Engberg-Pedersen 1993: 97). However, the r-locus view does not consider this point in space to be such a projection (see §2.4.1.2 for arguments against the spatial mapping view). Rather, the area where the fingertip of an index sign points to is a grammatical morpheme, which is semantically linked to a DR (see §3.4 below). In order to keep the terminology clear, the terms and the definitions used in this book follow below.

(8) Definitions

Localisation: to direct an index sign or spatially modify a sign towards a spatial area. A point in space is chosen, though it doesn’t matter which point. By means of this indexing, a DR is established in the spatial area and gets thus associated with it. It functions both as introduction of the DR and as anaphoric reference.

Location: spatial morpheme semantically associated with a DR. It is represented as (p).

The association between a DR and a location may be done by different means. The set of linguistic mechanisms used in LSC to establish (p) are the following:28

(9) Localisation mechanisms in LSC

Manual:
– Index signs
– Spatial modification of signs
– Verb agreement

Nonmanual:
– Eye gaze
– Body lean
– Head tilt

Most frequently these mechanisms do not occur alone, but rather combined. In Figure 13 the signer establishes a DR in signing space by means of a combination of mechanisms: spatial modification of the plain verb SEARCH
and head tilt are oriented towards the lateral part where the corresponding DR gets established. In what follows, a subsection is devoted to each mechanism. A state of the art literature is first offered and the LSC particular characteristics are then described on the basis of a qualitative analysis of the small-scale LSC corpus.

3.3.1. Index signs

Index signs consist in an index finger handshape (fist closed, index extended) directed to an area in space (Figure 14) (however, see Fenlon et al. 2013 for assimilation processes in the index handshape from neighbouring signs). They have been described for many SLs and constitute the mechanism most often referred to from the set listed in (3) (Berenz 1998, 2002, for Brazilian SL (LIBRAS); Bergman 1982, for Swedish Sign Language (SSL); Bos 1990, for Sign Language of the Netherlands (NGT); Engberg-Pedersen 1993, for Danish Sign Language (DSL); Pfau 2011 for German SL (DGS); Friedman 1975, McBurney 2002, Neidle et al. 2002, Padden 1988, Zimmer and Patschke 1991, for American Sign Language (ASL); Zeshan 2000, for IndoPakistani Sign Language (IPSL); Quer 2004, for LSC, among others).

![Figure 13. Localisation mechanisms](image1) ![Figure 14. Index sign](image2)

In LSC index signs may function as determiners (10a), demonstratives (10b), pronominals (10c), and possessives (10d) (Quer 2004; Quer and GRIN 2008). The same manual handshape can function differently. Importantly, it is always spatially modified and thus localises the nominals that co-occurs with, in the case of determiners, demonstratives and possessives, or the DR that picks up, in the case of pronouns. The spatial modification is indicated with the subscripts in the examples below.
(10) a. IX3₁ BOOK INTERESTING.
   ‘The book is interesting.’

b. *While referring to a present book*
   BOOK IX3₁ NAME PYJAMA CL.stripes.
   ‘The name of this book is “The boy in the striped pyjamas”.’

[br]
c. IX3₁, IX₁ LIKE.
   ‘I like it.’

[br]
d. DELFINA IX3₁ BOOK INTERESTING.
   ‘Delfina’s book is interesting.’

Besides pronominal index signs, localisation in LSC can also be expressed with the sign that consists in a derived form of the lexical noun PERSON. This sign is articulated with a baby-C handshape and a vertical downward movement (Figure 15a). It functions as a pronominal index which can be coreferentially used for the three person distinctions. This sign has been characterised by Meir (2003) for Israeli Sign Language (ISL) as a pronominal form of case marking. Pronominal index signs and the PERSON-3 sign can be indistinctly used without affecting the propositional meaning.²⁹ An important difference, though, is that while PERSON-3 can only denote [+human] entities, index signs can denote any kind of entity and it is not restricted to [+human]. This sign has an emphatic variant that consists in a bimanual B handshape articulation with the palm of the hands facing each other and a downward movement (Figure 15b). Importantly for the present account, both index and PERSON signs establish (p).

![Figure 15. PERSON sign](image-url)
3.3.2. Spatial modification

Signs are not always signed neutrally, but are very often spatially modified as well, when they are not body-anchored (Baker and Cokely 1980; Shepard-Kegl 1985). Spatial modification of a sign consists in signing the corresponding sign in a non-neutral location in space. That is, not in neutral space in front of the chest of the signer, but rather towards the ipsilateral (Figure 16a) or contralateral part (Figure 16b). This spatial modification establishes (p) in a lateral part of signing space.

![Figure 16. Spatial modification of signs](image)

In LSC common and proper nouns, determiners, plain verbs and classifiers can be spatially modified. In Quebec Sign Language (LSQ), Rinfret (2009: 220) finds that the strategy of spatially modifying the signs is used differently according to the type of data. The author argues that in elicited data spatial modification of signs is the mechanism more frequently used to localise entities in space, followed by index signs, body lean and finally eye gaze. In contrast, in spontaneous data spatial modification of signs is the least used mechanism, and signers prefer to localise with eye gaze, followed by index signs and body lean before using the spatial modification. No such difference has been found in the LSC data and spatially modification of signs is a strategy equally used in elicited and spontaneous data. However, further research with different kinds of data is needed.

3.3.3. Verb agreement

Verb agreement in SLs is also dependent on the use of space. A verb agreeing with subject and object is directed towards the spatial location established
with these referential functions (Janis 1995; Mathur 2000; Padden 1988; Zwitserlood and van Gijn 2006, among others). Agreement is marked with the direction of the movement, palm or fingers orientation and, according to some studies, with nonmanual markers. The direction of these mechanisms indicates coreferential binding with the arguments of the predicate. The three verbal classes identified by Padden (1988) are plain, agreement and spatial verbs, which are distinguished among them by affixes, as defined below:

(i) Plain verbs are not inflected for person or number. Agreement is expressed by means of personal pronouns or the auxiliary agreement sign.
(ii) Agreement verbs are inflected for person and number and the articulation of the verb moves from and towards two areas in space to indicate the arguments of the predicate. They are divided into two main groups: regular, in which the path is from subject to object (Figure 17a), and backwards, where the path is from object to subject (Figure 17b).
(iii) Spatial verbs agree with spatial locations, although in this case inflection indicates a locative argument or adjunct, that is where the referent identified with the predicate is located or moves from/to in space. Verbs of location and movement represented by classifiers are included within this broad group.

![Figure 17. Agreement verbs](image)

a. Regular agreement verb: SUPPORT  
b. Backwards agreement verb: ATTRACT

While this classification has a syntactic motivation according to Padden (1988), a semantic account has been defended claiming that for both agreeing verbs and backward verbs movement proceeds from the Source argument towards the Goal of the action (Meir 2002). However, other authors convincingly argue that this semantic analysis cannot be valid for SLs. A strong argument comes from the syntactic behaviour of auxiliary signs, which always
Localisation mechanisms consists in a movement from subject to object, irrespective of the theta-role they bear (Pfau, Salzmann, and Steinbach 2010; Quer and Quadros 2008). Also, this tripartite classification has been put into question arguing for a plain vs. non-plain verb distinction (Janis 1995; Quadros 1999; Quer and Quadros 2008). It is difficult to maintain whether spatial and agreeing verbs form separate categories since they agree with locative arguments and personal arguments and this is often indistinguishable on the surface. The reader is referred to Quer and Quadros (2008) for fresh evidence coming from LSC and Brazilian Sign Language (LSB).

Manual movement in signing space is not the only indicator of verb agreement. It has been argued for ASL that besides manual agreement, the nonmanual component also expresses inflection, and this is explained in the next subsection.

3.3.4. Nonmanual mechanisms

The nonmanual component provides very important mechanisms to localise entities in space. It is responsible for localising nouns and plain verbs, as well as marking inflection of agreement verbs in ASL under certain analyses. Concerning verb inflection, it has been claimed that agreement in ASL can also be expressed nonmanually. According to Aarons (1994), Bahan (1996), MacLaughlin (1997) and Neidle et al. (2000), transitive constructions are marked with head tilt and eye gaze: the signer’s head may tilt in the direction of the location for the subject, whereas his eyes may gaze in the direction of the location for the object. According to these authors, head tilt is a nonmanual manifestation of subject agreement, and eye gaze is a nonmanual manifestation of object agreement. This nonmanual agreement is not obligatory. In a later study, Neidle and Lee (2006) opt for a reconsideration of the function of head tilt. Since one unresolved puzzle was the seeming optionality of this marking, Neidle and Lee argue that head tilt is in fact a focus marker that incorporates expression of subject agreement. Hence, its occurrence depends on the information structure of the sentence, and when it occurs, it serves to mark both focus and subject agreement.

Independently of the complications in the description of nonmanual agreement (see Sandler and Lillo-Martin 2006: 43), head tilt, eye gaze and body lean serve as mechanisms to indicate that a nominal is established and associated with a certain location in signing space. Baker and Cokely (1980) refer to “eye-indexing” when eye gaze can suffice as a strategy for localising a DR in space. Eye gaze directed to space consists in a break in the eye gaze
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directed to the addressee, to redirect it to a specific location in signing space. But nonmanual strategies are not only confined to eye gaze, but also to body lean and head tilt (Rinfret 2009 for LSQ).

![Image](image.png)

**a. Head tilt and eye gaze**

**b. Head tilt**

*Figure 18. Nonmanual mechanisms of localisation*

Most frequently, nonmanual mechanisms occur in combination with manual ones. Figure 18a shows localisation with a combination of two nonmanual mechanisms, namely head tilt and eye gaze, co-occurring with the sign PERSON-3. Figure 18b shows localisation with the spatial modification of the sign PERSON-3 and head tilt co-occurring with it. The next section is a description of the spatial planes and their use in LSC discourse.

### 3.4. Non-descriptive use of spatial planes

As seen in §2.3.1, descriptive locations are used to express spatial relations among objects and they are not restricted to specific areas within the three-dimensional space. They are motivated by a mapping with the situation described and they are represented by meaningful locations. This is the reason why their use of space is freer. In contrast, non-descriptive locations are localised arbitrarily with respect to the situation described. They identify the arguments of the verb and they are categorically defined as occurring in the three spatial planes projected with respect to the body of the signer. In this section the spatial planes used in non-descriptive locations, briefly presented in §2.3.2, and the features contained within them are treated in detail. The three spatial planes, already shown in §2.3, are graphically reminded below.
The current proposal of the planes is based in Brentari (1998), and the major features distinctions are presented according to Liddell and Johnson (1989) and Sandler (1989). These features are applied and extended to the LSC discourse data, and a whole section is devoted to the specialised use in LSC discourse of each plane, namely horizontal, frontal and midsaggital.\textsuperscript{31}

The geometrical units in which space may be divided into are points, axes and planes. Points are zero-dimensional elements, which intersect with the three spatial planes. Axes are one-dimensional lines, which consist in a set of points whose coordinates satisfy a given linear equation. Finally, planes are a set of points, which extend in a two-dimensional area. Although points and axes have been previously used to analyse pronominal and agreement verbs in signing space (Padden et al. 2010; Wilbur 2008), the present work uses the notion of spatial plane because it allows focusing on the different features contained within each two-dimensional area. In mathematics, planes are defined according to two perspectives: (i) in terms of the planes where a point intersects (i.e. a point intersects at a position on the three planes, namely x, y, z); and (ii) according to all the points contained on the specific plane. Although perspective (i) is very relevant when dealing with spatial points, to refer to spatial locations established in signed discourse I use perspective (ii) because it allows to focus on the different features contained within each plane (Sandler 1989). The features established on each plane are the result of a particular direction of index signs or other localisation mechanisms. What matters is not the particular point in space, but rather the area in a plane that gets activated through the direction articulated with the index sign, as already explained in §3.1.
3.4.1. Horizontal

The horizontal plane stands perpendicularly to the body of the signer and since the beginning of SL linguistics research it is commonly considered as the default plane where the majority of signs are localised (Klima and Bellugi 1979). According to Sandler (1989), the horizontal plane can be divided into [ipsilateral] and [contralateral]. In Liddell and Johnson (1989)’s model the horizontal plane is further divided into another [centre] feature. This tripartite distinction is the one found in LSC, and (p) may be established in three areas as shown below.

![Figure 20. Horizontal plane](image)

Following Liddell and Johnson, the features are distinguished in accordance with the signer’s body: [centre] is in line with the breast; [ipsilateral] is in line with the outside edge of the dominant shoulder, and [contralateral] with the non-dominant shoulder. Figure 20 is an example of the divisions within the horizontal plane for a right-handed signer, in which the ipsilateral part coincides with the right hand part. With respect to the other planes, the horizontal one has more divisions, as three distinct directions are established.

The features within this plane and the axis they form are grammatically relevant in the expression of plurality and temporality. As for plurality, signs directed towards the axis unifying the contralateral and the ipsilateral part and repeated up to three times denote reduplication. This reduplication is only expressed in the line from the contralateral to the ipsilateral part. This same axis also expresses sequences of temporal units. The units are logically ordered from the contralateral to the ipsilateral part, as shown in (11), where the days of the week are directly localised to the contralateral and ipsilateral parts.
A temporal axis is also established from the contralateral to the centre part. This is the anaphoric axis in the time lines described by Engberg-Pedersen (1993: 81). The anaphoric axis is used to establish events with respect to a point of reference. It does not have a default time and thus it is always established in the context. In (12) the temporal sign BEFORE is articulated in the anaphoric axis from the centre to the contralateral part. But before the articulation of the sign, the point of reference needs to be established.

(12) TAKE_{cl}+++ ABANDON_{ip} NOT BEFORE THERE-IS SELECTION_{cl}.
‘Before taking [them to the place where they were exterminated] there was a selection.’

As far as the discourse level is concerned, the ipsilateral and contralateral areas on the horizontal plane are used as unmarked locations where DRs are established. There does not exist any grammatical norm, but the general tendency is that signers use their corresponding ipsilateral part to establish the first spatial location (i.e. right-handed signers use the right side of signing space, whereas left-handed signers use the left side). This is most surely motivated by economy reasons since the ipsilateral spatial location is always closer to the dominant hand. Importantly, discourse and sidedness (i.e. the side in space where DRs are localised) can override handedness, since the active hand can be shifted at a certain point for discourse reasons. Due to the setting of spatial locations, the hand closer to the lateral part where the DR has previously been localised may become the preferred hand along a discourse segment and the signer may use the non-active hand since it is closer to the contralateral part. That is to say, a right-handed signer may use his left hand (instead of the right one) as the active one within a discourse section when the entity is localised in the contralateral part, and thus reverse the hands dominance (Frishberg 1983). In this book I focus on the localisation of entities in space without regard to the articulator used and neglecting the articulation of dominance reversals. I leave this interesting issue for future research.

Interestingly, the three main areas distinguished on the horizontal plane are not equally used. On the one hand, the kind and attributes of the entities that can be localised in space are different. On the other, there is a contrastive import when using the lateral parts of signing space. These two aspects are the main concern of the following two subsections.
3.4.1.1. Kinds of spatial entities

Localisation can be used for DRs denoting present and non-present entities in the immediate physical context, as well as abstract objects. When denoting present entities, DRs are introduced into the universe of discourse via a deictic demonstrative pronoun, i.e. an index sign pointing to the direction that the present object occupies, as shown below. In such cases, a fixed eye gaze co-occurs with the introduction of the NP denoting the entity.

![Figure 21. Reference to present objects](image)

Since first and second person roles are required for the conversation to take place, the physical location of signer and addressee are used as default discourse locations. The index sign that localises the DR for first person is directed to and contacts the chest of the signer. The index sign that localises second person is directed towards the position the addressee occupies. The location for second person is commonly established on the horizontal plane [centre], frontal plane [lower], and midsaggital plane [distal]. However, as noted by Bhat (2004), pronominal reference to first and second person functions differently from third person reference. First and second person pronouns function as shifters rather than referring terms. They indicate the two principal conversation roles, namely that of being the sender and that of being the addressee, respectively. First and second person pronouns are local pronouns that directly point to their meaning. They act as shifters that indicate the involvement of conversation roles (Bhat 2004). This contrasts with reference to third (person) entities that identify the thing the conversation is about by locating it with reference to the spatio-temporal location of the event. Obviously, the thing the conversation is about can be centred on a first or second person, but in this case it functions as the thing the discourse is about, rather than as the conversation participant.

The distinction between conversation roles and the entity the conversation is about is also found in LSC in relation to establishment of DRs in
signing space. First and second person pronouns are directed towards the central part of the horizontal plane, while third person pronouns are directed towards the lateral parts with respect to the coordinates of the body of the signer. The pronoun used to mean second person is directed to the central part, and in contexts of role shift, the second person is by default established. However, first and second person pronouns are not used to denote what the discourse is about and they do not denote discourse entities. As they are considered to be conversation participants, they are left aside in the present account, which only deals with discourse entities.

Concerning non-present entities, a random location is used and only a very brief eye gaze is directed to the location in space (Figure 22). For third (person) entities, the presence and absence of the entity in the physical surrounding affects the direction of the index sign and the spatial setting of locations, but this is only an epiphenomenon. As shown in Barberà and Zwets (2013), in present references the location that establishes the anchor for further coreferential chains and the actual position of the object coincide.

Not all the entities established in discourse are equally localised in space, and in LSC there is a clear restriction of the kinds of entities that occupy a spatial location. The motivation for the difference in the kind of entities localised in each spatial part is found in the semantic ontology. Natural language semantics categorises entities into different ontological classes. The distinction between events or eventualities, states, propositions and facts turn the semantics of sentences somewhat more complex (Parsons 1990). Events are considered to be spatiotemporal entities that denote an action. Propositions are objects of belief, and they can receive a true or false value. A third category, very much discussed in the philosophical logic, is facts, which can be considered to be expressions of propositions. That is, propositions are kinds, and facts, which are truth-evaluated propositions, consist in
their instantiation. These ontological categories are considered to be abstract objects used in natural language to refer and they can be ordered from less to more abstract: events and states are placed at one end of the continuum, facts are situated in the middle, and propositions are placed at the most abstract extreme of the continuum (Asher 1993).

In this section I am not going to go deeply into the features that each class has in LSC. However, it is worth noting that LSC shows a distinction between the expression of entities (i.e. DRs) on the one hand, and the expression of other classes which include facts, propositions, and events, on the other. For the sake of simplicity, I call this second cluster of classes “non-entities”. Hence in this informal description, I define non-entities as being negatively identified with respect to DRs. Since DRs are described as the entity the conversation is about (see §4.1.3 for a detailed definition of DRs as entities), there is no need here for a fine-grained definition of facts/propositions/events. All that is not a DR, falls into the category of non-entities. As described before, DRs occupy a location in signing space, which is always established in the lateral parts. This contrasts with non-entities, which are established instead in the central position on the horizontal plane. The areas on the horizontal plane are thus specialised: DRs always occupy a spatial location on the lateral parts and non-entities occupy a location in the central part.

A further distinction between DRs and non-entities is found in its anaphoric behaviour. Unlike entities, which are localised during first mention and can be picked up by distant and non-distant resumptive pronouns, non-entities are never localised during first mention, but they are rather introduced into the discourse without being spatially established. However they can have non-distant anaphoric pronouns referring back to them. Although being characterised as non-entities, they can also serve as antecedents towards which resumptive pronouns refer back to (for instance, in the case of propositions). An example of a localised entity is (7), repeated here for convenience as (13) and with subsequent context, which contains a non-distant and a distant pronoun, marked in boldface below.

(13) IX3_<sub>c</sub> LAPTOP 1-OFFER-3 SON IX3_<sub>c1</sub> FOR NEW 3-SELECT-3 WORK IX3_<sub>c1</sub>

NEED LAPTOP IX3_<sub>c1</sub>

[...]

IX1 SURE IX3_<sub>c1</sub> HAPPY.

‘I will offer this laptop to my son, because he has been selected for a new job and he needs a laptop.

[...]

I’m sure he will be very happy.’
Example (13) contrasts with (14) where a non-entity is introduced although not localised. However, in the subsequent sentence a resumptive pronoun that consists in a lax pointing directed to the centre is used (\(\text{ix}_3^c\)). In (14) the event of Hitler becoming the German chancellor is not established in space. But a non-distant resumptive pronoun refers back to the just introduced non-entity (i.e. the proposition). This is articulated with a lax pointing sign directed to the centre, as graphically shown in Figure 23.

(14) YEAR 1933 HITLER PERSON-3_{ip} START 1-APPOINT-3_{ip} EQUAL/SAME RESPONSIBLE MAXIMUM GERMANY ZONE.\(\text{ix}_3^c\) NOVELTY LAW.

‘In 1933 Hitler was appointed chancellor of Germany. This (issue) entailed the creation of a new law.’

There is thus a difference between the localisation of DRs and non-entities on the horizontal plane, and also in the referring back process: while DRs are localised on the lateral parts and later on referred back to by both distant and non-distant resumptive pronouns, non-entities are not localised but directly referred back by non-distant anaphoric index signs directed to the centre. When introduced into the discourse, non-entities do not occupy any spatial location. This is logical according to our account in which only entity-like DRs have its corresponding spatial location on a side of the horizontal plane (see §4.2). However, when referring back to non-entities in short distance contexts a lax pointing to the centre can be used. Hence there is a clear distinction between the entity-like properties of the lateral parts of LSC signing space, and the non-entity-like properties of the central part. Since this book focuses on the entity-like properties signing space has, I only deal with the lateral parts and will leave the non-entity-like properties of the central part for future research.
3.4.1.2. Contrastive topics

In LSC the features on the horizontal plane used to localise entities, namely [ipsilateral] and [contralateral], are not grammatically relevant themselves. Whether (p) is precisely established on the ipsilateral or on the contralateral part does not mark any difference on the grammar of LSC. (15a) and (15b) are equivalent and the interpretation of the sentence is the same regardless of which nominal is localised in which lateral part. The denotation of the nominal is not affected by the localisation side, as the translation in (15) shows.

(15) a. YESTERDAY JOAN\textsubscript{ip} 3\textsubscript{ip}-TELL-1 PILAR IX3\textsubscript{cl} SICK.

b. YESTERDAY JOAN\textsubscript{cl} 3cl-TELL-1 PILAR IX3\textsubscript{ip} SICK.

‘Yesterday Joan told me that Pilar was sick.’

This phenomenon contrasts with the facts discussed in the following section (§3.3.2), where we will see that the two features on the frontal plane, namely upper and lower, have different grammatical denotations and correspond to different specificity interpretations. In the small-scale LSC corpus, the only motivations that force the localisation of (p) on the ipsilateral or on the contralateral side is due to assimilation processes and economy reasons, which escape the grammatical restrictions of the language. However, it is important to note that when two lateral locations are established within a concrete fragment of discourse (i.e. two locations are chosen) a contrastive relation arises, and this is so regardless of the exact lateral location assigned to each DR. Thus, even if no grammatical relation is established between the entity localised and the exact opposite part of the horizontal plane, a contrastive relation arises when the two of them are established. This is also shown in (15) where two entities that are contrasted are established in the two lateral parts.

In LSC, when both the ipsilateral and the contralateral parts are used in the same fragment of discourse to localise two entities, a contrastive relation is overtly expressed. This is an overt marking of the expression of contrastive topics (see Barberà 2007 for LSC contrastive topics; but also Büring 2003; Vallduví and Vilkuna 1998; for contrast in the spoken language literature, and Wilbur 2012, for a general overview of ASL contrastive topics). Engberg-Pedersen (1993: 74) descriptively defines this use as a convention of comparison, used when two entities need to be compared or contrasted. In LSC, this contrastive use of the lateral parts coincides with double contrast as defined in Mayol (2009, 2010). That is, two clause discourses in which
two DRs are introduced in each clause and their respective verbs predicate two different, contrasting actions (see §7.4.1 for examples of contrastive topics in LSC).

Furthermore, two or more DRs holding an affinity relation may be localised on the same area (Figure 24). This kind of organisation of the frame of reference in signing space has already been described for Danish Sign Language by Engberg-Pedersen (1993). She calls it the “semantic affinity convention” and it is the convention that covers different relations contributing to the organisation of the spatial frame of reference. In LSC contexts of parent-child, person-place, and also different possession relations, the DRs are localised on the same area, as long as they do not need to be distinguished for discourse reasons (i.e. contrastively marked).

3.4.2. Frontal

The frontal plane, according to Brentari (1998)’s terminology, extends vertically to the body of the signer.33 The features [lower] and [upper] described by Sandler (1989) are clearly distinguished in the LSC data. The phonological distinction between [lower] and [upper] cannot be made in accordance with the angle of the arm since the forearm cannot be taken as indicative of the direction shown by the index sign. When the forearm is parallel to the ground both the lower and the upper area can be indicated, because the wrist can be oriented to the two parts. Likewise, when the forearm is not parallel to the ground and the angle formed between the forearm and the ground is bigger than 90°, also both the upper and the lower area can be signalled by the different directions of the wrist. Thus the angle formed by the ground and the forearm cannot be taken as a reliable clue to distinguish the two parts of

![Figure 24. Discourse referents with a semantic affinity](image-url)
the frontal plane, since the wrist also plays an important role. Even if the arm makes a specific angle, the wrist can point differently. The two parts on the LSC frontal plane are clearly distinguished when we consider the shoulder and the head. The space from the height of the shoulder and upwards is considered to be the upper part. The lower part extends below the height of the shoulder (Figure 25).

In LSC the lower part of the frontal plane is the default area where (p) is established. In contrast, when (p) is established on the upper part, which is a marked area, it is associated with some particular and very concrete meanings, namely hierarchical relations, locatives, expression of grammatical specificity, and also absence from the immediate physical context. These marked meanings differentiated from the default marking are presented below.

3.4.2.1. Hierarchical relations

The upper part of the frontal plane is used to denote social hierarchical relations, and more specifically superiority. The contrast between upper and lower frontal plane is associated with asymmetrical relations such as parents-child, boss-worker, professor-student, etc. In such contexts, (p) established on the upper part of the frontal plane denotes the individual who is higher in the social hierarchy. This use has been previously described for LSC (Morales-López et al. 2005), for Indo-Pakistani Sign Language (Zeshan 2000), and for ASL (Liddell 1990; Schlenker and Lamberton 2012).

Within this use only definite NPs referred by pronouns and namesigns (i.e. signs used as proper names within the deaf community) are localised
on the frontal plane. In fact, this is a crucial difference with another use that I will discuss later on that denotes non-specificity and which is only operative when localising indefinite NPs (see §3.2.2.3). Definite NPs formed by common nouns such as MINISTRY, GOVERNMENT, BOSS, DEAN, FATHER+MOTHER and UNIVERSITY are always associated with the upper part of the frontal plane. Also name signs referring to someone higher in the social hierarchy are also localised towards an upper spatial location. Depending on whether they have contact with the signer’s body, they are localised with an index sign co-occurring with them (Figure 26a). Non-body anchored nouns may be spatially modified and thus articulated at a higher spatial location (Figure 26b).

The upper locations form a system of honorific speech, which are a morpho-logical way of encoding the relative social status of the DRs appearing in the discourse. They express social characteristic distinctions among the entities the discourse is about. What is important to note is that, in contrast with other Indo-European languages where honorific pronouns are encoded through second person pronouns, in LSC honorificity is only marked on third person pronouns, with a marked location towards the upper frontal plane.
According to the spatial mapping view (see §2.4.1), the localisation of entities towards an upper spatial location is an instance of a projection of the iconic properties, as well as the mental representation of the referent in signing space. However, I argue that the use of the upper part of the frontal plane to denote hierarchical relations does not reflect real heights that occur in real world situations and it is thus not always iconic. In fact, there is not a transfer from real world space to linguistic space since LSC does not convey the exact heights of entities. I will report an example in order to show this clearly. It is quite normal that when a teenager grows he becomes taller than his parents. In an LSC conversation between a father who measures 1,60 metres and his son who measures 1,90 metres, the father will be always localised in an upper part of the frontal plane and the son on the lower part. Regardless of real height, parents are localised on the upper part while children are localised on the lower one. Hence real height difference is not transferred to space. Signing space represents thus a linguistic convention that follows the premise that referents that occupy a prominent position in the hierarchical social scale are localised up on the frontal plane, rather than a real-world situation convention. A great number of examples that show this preference towards the linguistic convention could be reported. To further illustrate this point, I add another example related to topographical location of the referent in real world. At UPF, our university, the dean’s office is located on the third floor of the building. The office of the SL crew happens to be on the seventh floor. In every reference to the dean the localisation to refer to her is established with an upper spatial location in the frontal plane. The signer does not present the information differently according to what the addressee knows about the layout of the building, but rather there is a strict compliance with the linguistic convention. Hence no projection of the real world situation into signing space takes place.

3.4.2.2. Locatives

Locative NPs denote spatial locations, such as places, cities, regions and physical locations in the world. In LSC the locative noun is usually accompanied with an index sign (Quer et al. 2005). This index sign used in a locative NP tends to be localised on the upper frontal plane when denoting countries and bigger regions (Figure 27a). Also, locatives mark plurals with points in space (Figure 27b), rather than arc-shaped movements, which are characteristic of plural pronominal forms. In contexts denoting areas within a small region or a city, the imaginary map can be extended on the horizontal plane.
When more than one locative is used in a fragment of discourse, they are localised on the frontal plane, which is used as if it were a map. The distance between the places and the location is considered to be at a certain scale on the plane. This use is reminiscent of the absolute localisation where real-world locations are transferred to signing space. According to this use, if a signer is talking about an event of moving from Germany to France, the localisation of the two countries will be established in the frontal plane and within a certain scale. In this example, Germany will be localised in the upper and ipsilateral part and France will be localised in a lower part of the frontal plane and towards the contralateral part. Countries are established according to their positions in a frontal map and within a certain scale. Such contexts are a conflation of descriptive and non-descriptive locations. Once the spatial location for the country is established the agreement relations are established. Another example of conflation between the two uses of space occurs when we have sentences such as “The neighbour from upstairs sent me a fax”, where the expression of the subject location of the verb SEND is localised at an upper part denoting the upper floor and the path moves to first person location. Hence descriptive and non-descriptive locations in LSC are often conflated.

The use of space for locatives has been considered to be an iconic convention according to Engberg-Pedersen (1993: 74), since signers organise the frame of reference setting according to an imaginary map when denoting geographical places. It is true that signers localise countries and cities according to the location they occupy in the map represented in signing space with a certain scale. However, LSC tends to lose this iconicity when more than one use of space is at play. In a context where two locative NPs denoting two cities in a country having different positions on the hierarchy scale (i.e. one has more administrative/political power than the other) are
presented, the representation of the imaginary map is blurred. As shown in Barberà (2007), some instances in the small-scale LSC corpus show that the linguistic convention overrides the iconic one. When, for instance, a signer is talking about Spain and Catalonia, although Catalonia is the north-eastern autonomy of the country and Barcelona is geographically to the North of Madrid, the capital of the country is always localised at an upper location rather than at a lower one, as it would be expected according to the iconic convention. Since Madrid is the place where the central government is, it is a powerful entity. Hence it occupies an upper location regardless of its southern position with respect to Catalonia (Figure 28). The linguistic convention is preferred over the locative one, which is considered to be more iconic. Loss of iconicity is shown in these contexts.

![Image of signers with text](image)

**Figure 28.** Non-iconic convention

### 3.4.2.3. Specificity

The two parts of the frontal plane are also used when the signer wants to convey the specificity of the entity being talked about. The denotation of the same nominal localised on the upper and the lower frontal plane results in different interpretations. While the nominal localised on the lower part of the frontal plane is interpreted as specific (16), the nominal on the upper part is understood as non-specific (17).

(16) IX₁ INTERVIEW IX₃₁ WOMAN.
    ‘I have an interview with a woman_{spec}.’

(17) IX₁ INTERVIEW IX₃ᵤ WOMAN.
    ‘I have an interview with a woman_{nonspec}.’
Hence, when (p) is established on the lower part of the frontal plane it overtly expresses specific entities (Figure 29a), while (p) established on the upper part is circumscribed to non-specific entities (Figure 29b).

Figure 29. Specificity marking on the frontal plane

Importantly, this non-specific use is distinguished from the hierarchical one, as only indefinite NPs are marked for non-specificity. Only indefinite NPs can be used to denote specificity or non-specificity by location marking (see Chapter 5 for tests of indefiniteness). In contrast, when denoting hierarchical relations, definite NPs such as namesigns, pronouns and definite descriptions are used to localise the corresponding entity. In this chapter, I am only offering a brief description of the specificity use on the frontal plane, and Chapter 6 presents a detailed analysis with respect to the expression of specificity in LSC.

Interestingly, the localisation mechanisms listed in (9) which are directed to the frontal plane are used differently and some restrictions apply differently to the upper and the lower part. Within the lower part of the frontal plane any kind of manual and nonmanual mechanism can be directed to it (Figure 29a). Concerning linguistic categories, both lexical and functional elements may be directed to the lower part and establish (p). As shown in (18) and (19), common nouns and plain verbs can be localised on the lower part.

(18) \textsc{house}₁ \textsc{red}
    ‘The red house’

(19) \textsc{four} \textsc{person}++ \textsc{there}-is₃
    ‘There are four people.’
As shown in (20) the arguments of a verb may be also associated with a lower location. Verb inflection is thus grammatical in lower locations.

(20) IX3₁ 3₁-ADVISE-1 BETTER NOT.

‘He advised me not to do it.’

Last but not least, determiners may also be directed to a lower location when establishing a NP. Note that without regard of the kind of linguistic mechanism used to localise the NP, whenever the localisation is established on the lower frontal plane a specific interpretation arises.

(21) HOUSE ALL₁ WHITE.

‘All the houses are white.’

(22) HOUSE SOME₁ RED.

‘Some of the houses are red.’

However, the upper frontal plane presents some restrictions. As for the nonmanual component, only eye gaze can be directed to an upper location. Head tilt and body lean cannot be oriented towards the upper part of the frontal plane, arguably because of phonological restrictions. Such a restriction not only operates on the kind of localisation mechanisms, but also on the kind of linguistic elements that are localisable on the upper frontal plane. As for manual signs, only a specific set of signs can be oriented towards the upper part, such as weak determiners (23) and verb inflection (24).

(23) HOUSE SOMEᵣ₁ CLE.B-house-destroyed.

‘Some houses_non-spec were destroyed.’

(24) 3ᵣ-ADVISE-3 BETTER NOT.

‘Someone_non-spec advised him not to do it.’

In contrast, there are some clear restrictions on the kind of linguistic categories. Bare common nouns (25), plain verbs (26) and strong determiners (27) cannot be spatially modified towards an upper location. In fact, upper localisations with the above mentioned lexical categories are considered to be ungrammatical in LSC. (p) is thus only established on the upper part with a restricted set of linguistic elements.

(25) *HOUSEᵣ₁ CLE.B-house-destroyed

(26) *THERE-ISᵣ₁ FOUR PERSON++
A further restriction is found on the sign PERSON-3 discussed in §3.1.1. The sign PERSON-3 in LSC may have two functions: a nominal and a determiner/pronominal one. When used as a nominal, it cannot be localised in the upper frontal plane (28a). When used as a pronoun or as a determiner, it may be directed towards the upper part and establishes the corresponding NP (28b). In the latter case, the interpretation that we get is a non-specific one as shown in the translation of the glosses.

(28) a. \textit{PERSON-}3\textsubscript{u} ‘A man\textsubscript{non-spec}’

b. 1X3\textsubscript{u} MAN ‘One man\textsubscript{non-spec}’

However, when the sign PERSON-3 is used as a noun it is considered to be grammatical to localise it on the upper part.

(29) ONE PERSON\textsubscript{u} ‘One person\textsubscript{non-spec}’

In this second case, note that without regard on the kind of linguistic mechanism used to localise the NP, whenever the localisation is established on the upper frontal part a non-specific interpretation arises. The distinction of the two parts of the frontal plane denoting specificity is the main concern of Chapter 6 and, as will be shown, only functional categories can be localised on the upper frontal part.

In some contexts, two different uses of the frontal plane denoting different meaning may co-occur. This is the case when, for instance, a lower location marked in one element is conflated in the same NP with an upper location marked in another element. In such cases the two opposed locations are articulated, although minimised for phonological reasons. That is, the lower location tends to be marked loosely and with a tendency towards an upper direction. In (30) the determiner denotes a specific entity and hence it has a direction towards the lower part. The nominal denotes an entity higher in the social hierarchy, which is commonly localised on the upper part. The two opposed directions are marked, although the upper direction of the nominal starts before the onset of the articulation of the nominal. The determiner SOME is articulated towards the lower part of the frontal plane, but before
the end of the articulation, it is directed towards the upper part of the frontal plane where the nominal UNIVERSITY is also directed to.

(30) SOME\text{spec} UNIVERSITY
    ‘Some universities’

In principle, no iconic rule operates on the specificity use of the frontal plane. If iconicity were a major criterion, LSC could in principle also convey the expression of specificity using for instance the proximal and distal features on the horizontal plane. Since the proximal area is closer to the body of the signer it could be used to represent specific entities (since they are closer, they are better known by the signer). In addition, the distal area within the midsaggittal plane could be used to denote non-specific entities, that is entities not known or not identifiable by the signer. However, this is not how specificity in LSC is manifested. Another iconic possibility could be found by representing specificity on the horizontal plane (see §3.2.1). Everything that is known and identifiable by the signer is localised on the ipsilateral part, which is the lateral part close to the active hand of the signer. All those entities neither known nor identifiable by the signer could be localised on the contralateral part, which is the side in signing space used by the non-active hand. Again, this is not how specificity is marked in LSC and the iconicity hypothesis is thus blurred.

The frontal plane to denote specificity is a major spatial distinction that corresponds to a grammatical function, and this is precisely the main concern of Chapter 6. Now, let us move to the last meaning assigned to the upper part of the frontal plane.

3.4.2.4. Absence in the physical context

A final use of the frontal plane to be noted is the one that denotes absence of the entity, which is always [+human], within the immediate physical context. This is especially notorious in LSC when the entity talked about is a person who is not present in the conversation environment. Hence namesigns used to refer to someone who is not around co-occur with an index sign pointing towards the upper part of the frontal plane.

As shown so far, the uses of the upper part of the frontal plane in LSC split into four main functions. First, it is the area where hierarchical relations are distinguished. Second, it is the place where locative signs are mainly directed. Third, non-specificity marking is overtly expressed when DRs are
established in this area. And fourth, non-presence in the immediate physical context, especially when denoting human individuals, is also marked with an index sign towards the upper part. Importantly, it has been shown that when a conflict of locations arises, the linguistic convention is preferred over the iconic one. This leads to a preference for relative localisation constrained by linguistic conventions over iconic and absolute ones.

3.4.3. Midsaggital

The midsaggital plane extends vertically and perpendicularly to the body of the signer. Two features are found, namely [proximal] and [distal]. [proximal] "is defined as a distance a few inches from the specified place, and [distal] is a comfortable arm’s length away from the place" (Sandler 1989: 136).35 Hence the distinction proximal vs. distal is established in accordance with the angle the elbow forms: the [proximal] feature occurs when the angle of the elbow is smaller than 90º, and the [distal] feature occurs when the angle is bigger than 90º, as shown in Figure 30.

![Figure 30. Midsaggital plane](image)

The features proximal and distal unify the axis used to express temporal information, where present tense is signed in the proximal area, and future tense is signed in the distal area. They are also relevant at the lexical level. The sign for TOMORROW is signed in the proximal area, and the sign for THE-DAY-AFTER-TOMORROW is signed in the distal area. This axis also forms the mixed temporal axis (Engberg-Pedersen 1993: 81), which conflates the anaphoric and the deictic axis. That is to say, the temporal information in this axis is marked in the discourse and anchored in the context, and lexical signs like FROM-NOW-ONWARDS and UNTIL-NOW are articulated starting in the proximal area and moving towards the distal area.
However, as for the discourse level, the dual distinction on the midsagittal plane is not found when establishing entities in space. Entities are not abstractly established in LSC in the proximal as opposed to the distal part. Rather, the midsagittal plane is used as a single extension and no distinguishable areas can be established when localising entities. Thus a singleton feature [front] is distinguished and (p) is established in it without conveying further distinctions. Nonetheless, when a demonstrative sign is used deictically, and it is thus pointing to an object present in the physical environment there is a conflation of a descriptive use of space (i.e. because of the deictic component) and a non-descriptive use. The direction of the demonstrative pointing towards a present object is always precisely oriented towards the direction where the present object is found in the physical environment. This descriptive use is conflated with a non-descriptive one, since once the entity is established in the discourse, it is possible to refer back to it. As already mentioned, descriptive uses of space are freer and categorical distinctions are established with difficulty. Hence due to the descriptive component of these conflated structures, no distinction between [proximal] and [distal] can be straightforwardly made. This is why the midsagittal plane is treated as a single extension where no further distinctions are found. In the next section, I focus on the clusters of features spatial planes have.

### 3.5. Features on spatial planes

As said at the beginning of §3.2, a location is an intersection among the three spatial planes. Hence, when (p) is established, a cluster of features, which characterise the intersection, coincide. So far we have seen that six features are established in LSC discourse. The possibility of combinations among these features adds up to six, since we have three possibilities: three features on the horizontal plane ([ipsi], [contra], [centre]); two features on the frontal plane ([low] and [up]), and one feature on the midsagittal plane ([front]) (i.e. 3x2x1). Although these six combinations could potentially be the spatial areas used in the grammar of the language, in LSC only five directions formed by clusters of features are indeed found. The [front] area on the midsagittal plane is not further divided into [low] and [up] parts, but it is rather considered to be one and only direction without further division. As for the frontal plane, the two features [low] and [up] can be combined with the lateral horizontal features, namely [ipsi] and [contra] features. That is, the [ipsi] feature can be combined with [low] and [up], and the [contra] feature can be combined with [low] and [up]. According to this, only the following combinations in (31) are possible.
Features on spatial planes

(31) a. (p): \{[front], [ipsi], [low]\}
b. (p): \{[front], [ipsi], [up]\}
c. (p): \{[front], [centre]\}
d. (p): \{[front], [contra], [low]\}
e. (p): \{[front], [contra], [up]\}

These five clusters of features represent the directions where (p) may be established. However, no grammatical difference has been found in LSC in using [ipsi] and [contra] features apart from motivations due to assimilation processes and economy reasons (see §3.3.1). Concerning these lateral parts, what matters is the establishment of the two opposing sides, rather than the concrete side of localisation. Hence, although five directions are possible, only three clusters of features are relevant in LSC grammar. The reason is that the cluster formed by \{[front], [ipsi], [low]\} is the mirror image of \{[front], [contra], [low]\}, and \{[front], [ipsi], [up]\} is the mirror image of \{[front], [contra], [up]\}.

(32) a. \{[front], [ipsi], [low]\} ≡ \{[front], [contra], [low]\}
b. \{[front], [ipsi], [up]\} ≡ \{[front], [contra], [up]\}

While the features [ipsi] and [contra] do not imply any contrastive difference in the grammar of LSC, the [up] and [low] contrast in the frontal plane does imply a grammatical distinction in LSC. As detailed in 3.3.2, NPs localised on the upper part are associated with some particular and marked meanings, while the lower part is the default marking. Hence the two features on the frontal plane are relevant and play a very specific role in LSC grammar, whereas this is not the case for the lateral features. The three clusters of features which are relevant for LSC and which characterise (p) are the following:

(33) a. (p): \{[front], [ipsi]/[contra], [low]\}
b. (p): \{[front], [ipsi]/[contra], [up]\}
c. (p): \{[front], [centre]\}

These three clusters of features are each specialised in the contribution of grammatical and referential aspects. As shown in (33), the referential properties and
the anaphoric behaviour of the [centre] area diverges from the [ipsi] and [contra] sides. Not only the kind of entities, but also the referring back process is very different. Entity-like properties of space are only found with (34a) and (34b), and the semantics of non-entities in (25c) is left aside in the present book.

(34) a. \((p): [[\text{front}], [\text{ipsi}]/[\text{contra}], [\text{low}]]: \{\text{discourse referents}\}\)

b. \((p): [[\text{front}], [\text{ipsi}]/[\text{contra}], [\text{up}]]: \{\text{discourse referents (hierarchical position, locative information, non-specificity, absence in the physical context)}\}\)

c. \((p): [[\text{front}], [\text{centre}]]: \{\text{non-entities (events, propositions, facts)}\}\)

Only two features concerned with entity-like properties of signing space are relevantly distinct in LSC grammar, namely lower and upper. Thus, the clusters of features in (35a) and (35b) can be abbreviated as [low] and [up] to keep the denotation simple.

(35) a. \([\text{front}], [\text{ipsi}]/[\text{contra}], [\text{low}]\) \(\rightarrow (p)[\text{low}]\)

b. \([\text{front}], [\text{ipsi}]/[\text{contra}], [\text{up}]\) \(\rightarrow (p)[\text{up}]\)

Hence [low] and [up] are the two grammatically relevant features that can be attached to the morpheme \((p)\) in LSC. But since \((p)[\text{low}]\) is the default morpheme, I keep the denotation even simpler and distinguish between \((p)\), which is the unmarked spatial morpheme, as opposed to \((p)[\text{up}]\), which is the marked spatial location having a concrete meaning.

The spatial morpheme \((p)\) consists in an abstract and unique point in space, which is interpreted in the grammar of the language as a categorical element. This morpheme is semantically associated with an individual from the model (as will be shown in Chapter 4), and has the feature [low] as the default marking. The marked feature [up] denotes a particular meaning. Morphophonologically, I consider the feature [up] added to the spatial morpheme to be an LSC homomorph, which denotes four concrete meanings. Homomorphs are morphemes with the same form but different meaning. An English example is the morpheme –er which can denote comparative meaning, as in bigger; human agentivity, as in teacher, and inanimate instrument, as in screwdriver. In the case of LSC, the homomorph [up] is specialised with four meanings, indicated below:

(36) [up]: \{\text{hierarchical position, locative information, non-specificity, absence in the physical context}\}
The grammatical difference between (p) and (p)[up] is also notable when looking at the set of mechanisms that can localise in the different spatial directions. As seen in §3.3, while no difference is manifested on the midsagittal or on the horizontal plane, the frontal plane imposes some restrictions on the kind of localisation mechanisms. Concerning nonmanuals, only eye gaze can be attached to the [up] affix. This restriction could be motivated by a phonological restriction, since it is physically hard or impossible to direct a body lean or a head tilt towards the upper part as opposed to the lower part.

Moreover, only a specific set of elements can be attached to the affix [up]. The localised signs in (37), as previously seen, prove that only functional categories, such as weak determiners (37a) and verb inflection (37b), can be felicitously localised on the upper frontal plane. However, nouns (37c), plain verbs (37d) and strong determiners (37e) are considered to be ungrammatical when localised on the upper part.

(37) a. HOUSE SOME up CL e.B-house-destroyed.
   ‘Some houses non-spec were destroyed.’

b. 3 up-ADVISE-3 BETTER NOT.
   ‘Someone non-spec advised him not to do it.’

c. *HOUSE up CL e.B-house-destroyed

d. *THERE-IS up FOUR PERSON++

e. *HOUSE ALL up WHITE

The restriction of directing functional elements only towards the upper part is a very interesting one, which shows that the feature [up] is grammatically relevant. As shown in the translation of the glosses in (28a) and (28b), the interpretation that arises is a non-specific one. How the spatial morpheme (p) is associated with meaning is the main focus of Chapter 4, and the non-specificity marking of the feature [up] is further treated in Chapter 6.

3.6. Body-anchored locations

In the preceding sections, I have mainly focused on locations established on the three spatial planes, which extend in front of the signer’s body. However, locations can also occur as body-anchored forms, since the body of the signer and the spatial area immediately in front of it is also considered to be part of signing space. Hence, DRs may also be introduced into the discourse without
being localised in the three-dimensional extent. In such contexts the signer’s body is used as the location parameter. Body-anchored locations are carried out with verbs agreeing with the body of the signer (generally assigned to first person). As a further fact, this can be combined with role shift. When this happens the DR is picked up again through a role shift construction (see note 25). This referential shift is indicated by modifications on the signer’s facial expression and body position. When the shift takes place, the body of the signer is used as a default location for the displaced first person.

In (38) the signer introduces a new entity into the discourse, which is a man who is walking. Although he is talking about a third person he does not localise it on a lateral part, but rather uses an entity classifier and role shift, and the location is established in the body. When the body-anchored location is established, the verb WALK and the entity classifier are articulated from the body and moving forward. To denote the shift, there is a change on the signer’s facial expression (Figure 31). Hence body-anchored locations occur when the spatial morpheme (p) is articulated at the signer’s location.

(38) ONE MAN WALK CLe.long-thin-entity-moving-forward.

‘There is a man walking.’

Figure 31. Body-anchored location

Importantly, body-anchored locations need to be distinguished from signs with an internal phonological specification where the location parameter is phonologically specified at a determined location closer or in contact with the body of the signer. The location parameter is a fixed element, which differs from body-anchored locations, which are a more abstract location
near the body of the signer where entities are established. Even more, body-anchored locations do not have to be confused with lack of establishment of a spatial location. Signers may sign NPs according to its citation form. In this case, there is no establishment of the entity denoted with a spatial location, neither in signing space nor in the signer’s body. Whenever the citation form is expressed there is no overt connection with the DR denoted. In Figure 32a the citation form of the sign PERSON is illustrated. As it can be observed, no manual or nonmanual mechanisms localise the nominal. This contrasts with Figure 32b where the signer directs eye gaze and a slight spatial modification to the ipsilateral part.

Also weak referential elements are not localised in LSC. That is, a bare noun not spatially localised can yield a generic reading (see §4.3 and Quer 2005a, 2012). The minimal pair in (39) shows this distinction. While the non-localised bare noun in (39a) has a generic interpretation, the localised noun in (39b) has a referential interpretation.

(39) a. WOMAN READ LIKE.
     ‘Women like to read.’

     b. WOMAN 1X3₁ READ LIKE.
     ‘This/the/a_{spec} woman likes to read.’

In fact a generic interpretation is not obtained when a body-anchored location agrees with the signer’s location. As (40) shows, when the verb is localised at the signer’s body, only the referential reading is felicitous (40a).
(40) **WOMAN 1-WALK LIKE.**
   a. ‘A woman likes to walk.’
   b. *‘Women like to walk.’

Hence, generic and weak bare nouns are not assigned a spatial location in LSC discourse, as will be shown in the following chapter. This contrasts with localised entities. The spatial morpheme (p) may be localised on signing space or the signer’s body, and it stands for the overt manifestation of DRs. How the spatial morpheme is connected to the DR which denotes is precisely the main concern of the next chapter.

### 3.7. Summary

This chapter has described the three spatial planes used for localisation, the features within each plane, as well as the grammatical correlations found in non-descriptive locations. It has been shown that localisation mechanisms can be modelled through a grammatical morpheme (p) that consists in an abstract point in space regardless of the direction of the localised sign. The direction in space towards the horizontal plane where (p) is established is irrelevant for the grammar of LSC. This spatial morpheme is invariably established in the ipsilateral or contralateral direction without implying a contrastive meaning in the grammar of LSC. It rather implies a contrastive import at the discourse level. Concerning the frontal plane, the features [low] and [up] are grammatically relevant when attached to (p). The clitic morpheme used by default has the feature [low], and the notation used here is (p). The marked feature [up] is used to denote concrete meanings, namely locatives, nouns denoting entities in a higher position in the hierarchy, absence in the physical context, as well as non-specificity. As for the notation, (p)[low] is used for this marked use.