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SPECIFICITY AND DEFINITENESS

Theoretical perspectives

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18.1 Introduction

Definiteness and specificity are two interrelated but independent notions. While definiteness encodes the information that the sender assumes that the addressee has, specificity encodes the knowledge that the sender has and the anchoring to an item. Definite noun phrases (NPs) encode that both sender and addressee may identify the discourse referent. Indefinite NPs mark that the addressee may not identify the entity being talked about. As for specificity, it is generally assumed that while specific indefinite NPs exhibit a sender-addressee asymmetry, since only the sender may identify the discourse referent or may anchor it to a discourse item, non-specific indefinite NPs are symmetric since they mark that neither the sender nor the addressee can identify or anchor it.[1] These general semantic and pragmatic concepts may be mirrored in the linguistic system.

In English, there is an overt marking for definite NPs (1a) and an overt marking for indefinite NPs (1b). The indefinite article *a* may be ambiguous between a specific and a non-specific reading. That is, in the specific reading, only the sender may identify the entity being talked about. In the non-specific reading, none of the participants in the context may identify it. Although specificity is not overtly marked in the English determiner system, it has observable effects on co-reference. In English, the kind of co-referential pronoun disambiguates the two possible readings (Partee 1970). Under the specific reading, the indefinite NP 'a book' refers to an identifiable book (2a). Under the non-specific reading, Joana is looking for an element of the kind 'syntax book', but there is not any particular book that the sender has in mind when uttering (2b).

(1) a. **The book** that we read last month was about definiteness.
     b. Next month, we will read **a book** about definiteness.

(2) Joana wants to read **a book** about syntax …
     a. but she cannot find **it**.
     b. but she cannot find **one**.

The range of NP types that have definiteness as part of their meaning include determiners (the English definite article *the*), demonstratives (*this*, *that*, *those*), proper nouns (*Joana*, *Martí*), possessives (*my*, *your*, *her*), and personal pronouns (*you*, *she*, *they*). Indefiniteness is encoded with the indefinite determiner in languages that have one (for instance, English *a*), generic ontological-category nouns (such as *someone*, *something*, *somewhere* in English), interrogative pronouns (such as *neaq-naa* 'somebody/who' and *qway* 'something/what' in Khmer (Haspelmath 1997: 27)), one-based definite particles (English *one*, French *on*, German *man*), cardinals, and quantifiers (such as *most*, *many*).

From a theoretical point of view, definiteness is usually associated with uniqueness and familiarity. On the one hand, uniqueness approaches are built on the insight that a definite description is used to refer to entities that have a role or a property which is unique (Kadmon 1990; Abbott 1999). Uniqueness means that there is one and no more than one entity that has a particular property, as exemplified in (3).

(3)   **The sun** is shining.

On the other hand, pragmatic theories tend to treat familiarity and anaphoricity as the central notion for definiteness (Kamp 1981; Heim 1982; Roberts 2003). They are based on the idea that definite descriptions serve to pick out discourse referents that are in some sense familiar (i.e., identifiable) to the discourse participants, because they are co-present (4a), culturally shared, and therefore part of the common ground (4b) or already mentioned in the discourse (4c).

(4)   a.   Just give **the shelf** a quick wipe, will you?, before I put this vase on it.
      b.   **The president** is visiting the school tomorrow.
      c.   An elegant dark-haired woman, a man with dark glasses, and two children entered the compartment. I immediately recognized **the woman**.

The two types of definites have been shown cross-linguistically to include a specialized marking: one type of definite, involving weak articles is based on uniqueness, whereas strong article definites crucially involve an anaphoric link (Schwarz 2009).

Specificity is encoded differently in each language. Some languages encode it in the article system, others encode it with affixes, others encode it in the expression of mood, and others lack encoding of this semantic-pragmatic notion. Samoan and Maori are two Polynesian languages with an article system that distinguishes specificity rather than definiteness (Lyons 1999). Samoan uses the article *le* with specific NPs, which indicates that the discourse referent refers to one particular entity regardless of whether it is definite or indefinite. The other article (*se*) is used with non-specific discourse referents, which do not refer to a particular, specified item (Mosel & Hovdhaugen 1992, cited in Lyons 1999: 57). In Maori, the article *he* (which does not distinguish number) is used when the kind of entity is crucial, and *teetahi/eetahi* when the number is significant (Chung & Ladusaw 2004). The meanings and patterns of use of Maori articles are not yet fully established, but it seems that its article system relates partly to the distinction between specific and non-specific, rather than definite and indefinite. Another way of marking specificity is by means of affixes. According to Enç (1991), Turkish encodes specificity with an accusative affix. The following minimal pair taken from Enç (1991) shows that

when the NP has overt case morphology, it refers to a specific discourse referent (5a). The indefinite NP with accusative case has a covert partitive reading, and it introduces into the domain of discourse individuals from a previously given set. This contrasts with (5b), where the NP without case morphology refers to a non-specific entity.

(5) a. Iki kiz-**i**   taniyordum.
         two girl-ACC   I-knew
         'I knew two of the girls.'
     b. Iki   kiz   taniyordum.
         two   girl I-knew
         'I knew two girls.'   (Turkish, Enç 1991: 6)

Leaving aside the overt marking, from a theoretical point of view the different kinds of specific indefinites have been extensively discussed in the literature (von Heusinger 2002, 2011). Among the various types of specific indefinites, for the purpose of the present article three types of specificity are considered, namely scope, epistemicity, and partitivity. Section 18.3.1 applies the two types of definiteness to sign language data, and Section 18.3.2 develops each specificity notion according to sign language examples.

18.2 Manual and non-manual marking

18.2.1 *Lexical determiners and non-manual marking*

Sign languages are provided with a rich array of lexical signs expressing indefiniteness, but to the best of my knowledge, only few lexical signs have been claimed so far to be specialized for definiteness. In this first section, the focus is on lexical determiners and non-manual marking. Other markings of definiteness include the overt prenominal index sign (see Sections 18.2.2 and 18.3.1), as well as particular non-manual marking (see below). In American Sign Language (ASL), the sign SELF/G[2] has been considered to be a definite article (6a, b), but also a specificity marker (Wilbur 1996), and a presuppositionality marker (Mathur 1996).[3]

(6) a. YESTERDAY MY CAR **SELF/G** BREAK-DOWN
         'Yesterday my car broke down.'
     b. BUT LAST YEAR, ONCE FATHER **SELF/G** FUNNY NOT
         'But one time last year, my father wasn't at all funny.'
                                          (ASL, Fischer & Johnson 2012[1982]: 248)

According to the extended typological study of indefiniteness in spoken languages, there are three different types of derivational bases from which indefinite determiners and pronouns are derived. First, indefinites appear to have been grammaticalized from the numeral 'one'. Second, they have evolved from interrogative elements, like 'who', 'what', and 'where'. Finally, they have also evolved from generic ontological-category nouns, such as 'person' or 'thing' (Haspelmath 1997; Bhat 2005). This pattern is also attested in some sign languages. In ASL, for instance, the indefinite animate determiner translated as 'someone' has the same handshape and orientation as the numeral ONE and the classifier for a person or an animate entity, with an additional slight tremoring and circular movement. This happens to be also the case in British Sign Language (BSL; Cormier

2012). As for ASL, while the numeral sign ONE triggers a specific interpretation (7a), the indefinite SOMETHING/ONE, articulated with a tremoring movement, triggers a non-specific interpretation (7b). The non-manuals that correlate with this sign correspond to those associated with uncertainty, namely tensed nose, lowered brows, and sometimes also raising the shoulders (MacLaughlin 1997).

(7)   a.   **ONE** DOG BITE IX-1
            'A (specific) dog bit me.'
      b.   **SOMETHING/ONE** DOG BITE IX-1
            'Some dog bit me.'   (ASL, MacLaughlin 1997: 118)

In Hong Kong Sign Language (HKSL) and Catalan Sign Language (LSC), the indefinite determiner ONE has the same articulation as the numeral sign, but unlike ASL, it does not involve a tremoring movement (Tang & Sze (2002) for HKSL; Barberà (2015) for LSC). The sign ONE in HKSL usually selects a noun. When it occurs in prenominal position, the sign is ambiguous between a determiner and a numeral (8a). However, in postnominal position only the numeral reading is possible (8b). With indefinite non-specific discourse referents, the index finger moves from left to right with a tremoring movement involving the wrist (8c). As for the non-manual marking, the (in)definiteness distinction in HKSL is marked by eye gaze behavior: while definite determiners co-occur with an eye gaze directed to the referential locus (R-locus),[4] for indefinite specific ones, eye gaze is directed towards the addressee. When the tremoring movement for non-specific entities is articulated, eye gaze is never directed to space but instead towards the path of the hand, suggesting that there is no R-locus established for the discourse referent (Tang & Sze 2002: 304).

(8)   a.   YESTERDAY **ONE** FEMALE-KID COME
            'A girl came yesterday.' (indefinite or numeral reading)
      b.   YESTERDAY FEMALE-KID **ONE** COME
            'One girl came yesterday.' (numeral reading only)
      c.   IX-3 BOOK GIVE **ONE**$_{det\text{-}path}$ PERSON
            'His book was given to someone.' (non-specific reading)
                                                    (HKSL, Tang & Sze 2002: 301–304)

Indefinite pronouns in sign languages may also derive from interrogative pronouns (Zeshan 2004). In LSC, the indefinite pronoun expressed with the interrogative pronoun may have three possible forms: the concatenation of the interrogative and a plural index pronoun (9a), the concatenation of the interrogative and a quantifier (9b), and the interrogative pronoun by itself (9c). Non-manual marking licenses the indefinite interpretation, and therefore ambiguity does not arise.

(9)   a.   **WHO^IX-3$_{pl.up}$** MONEY 3-STEAL-3$_{up}$
            'Someone stole the money.'   (LSC, Barberà & Quer 2013: 254)
      b.   **WHO^SOME$_{up}$** BICYCLE 1-STEAL-3$_{up}$+++ TWO TIMES
            'Someone stole my bicycle two times.'   (LSC, Barberà 2016: 24)
      c.   **WHO** MONEY 3-STEAL-3$_{up}$
            'Someone stole the money.'

In ASL, a sign with a similar articulation but distinguishable from the wh-sign glossed as WHAT has been considered to have the same function as an indefinite pronoun (Conlin et al. 2003). The articulation of the sign involves a single outward movement, rather than side-to-side shaking of the hands. Moreover, there is a tendency for this particle to phonologically cliticize to the sign it follows. The non-manuals that correlate with this sign correspond to those associated to uncertainty, as defined above.

Finally, indefinite pronouns appear to have been grammaticalized from generic nouns such as 'person' or 'thing'. In LSC and Spanish Sign Language (LSE), the reduplicated form of the sign PERSON has an indefinite reading, similar to 'people' or 'they', as shown in (10) and (11) (Barberà & Costello 2017).

(10) IX BALEAR **PERSON+++** SPEAK CATALAN
      'In the Balearic Islands, people/they speak Catalan.'

                                               (LSC, Barberà & Costello 2017: 57)

(11) IX ISRAEL IX **PERSON+++** GO+++ PRAY SATURDAY
      'In Israel, people/they pray on Saturdays.'   (LSE, Barberà & Costello 2017: 58)

Pfau & Steinbach (2006) describe the indefinite pronoun in German Sign Language (DGS) and Sign Language of the Netherlands (NGT) as a grammaticalized combination of the numeral ONE and the sign PERSON. This indefinite pronoun does not necessarily refer to only one person, as it may be also understood as plural. In example (13), for instance, it may very well be the case that two or three people are recruited for the dishes.

(12) IX-1 **ONE^PERSON** SEE
      'I've seen someone.'   (DGS, Pfau & Steinbach 2006: 35)

(13) **ONE^PERSON** WASH-DISH DO MUST
      'Someone has to do the dishes.'   (NGT, Pfau & Steinbach 2006: 35)

Moreover, some sign languages (e.g., LSC and LIS) have a lexical sign that marks exclusiveness and thus non-specificity. One example is the sign HEARING in LIS, which is used in contexts where the identity of the discourse referent is neither known nor close to the sender (Geraci 2012). As the example below shows, the use of this sign does not have a pejorative meaning, as it can be used in a context where the discourse referent helps the sender.

(14) **HEARING** IX-3$_{up}$ COME HELP
      'Someone (not known) came and helped.'   (LIS, Geraci 2012)

The non-manual marking for definiteness and specificity differs across sign languages (for extensive discussion of non-manuals, see Wilbur, Chapter 24). In some sign languages, the co-articulation of squinted eyes on the NP marks discourse referents that are both familiar and accessible by the discourse participants. This has been attested for Danish Sign Language (DSL; Engberg-Pedersen 1993), Israeli Sign Language (ISL;

Dachkovsky & Sandler 2009), and DGS (Herrmann 2013). Raised eyebrows (which may convey topic marking; see Kimmelman & Pfau, Chapter 26) also mark shared knowledge of the referent being talked about. In NGT and Russian Sign Language (RSL), a wrinkled nose appears to combine with NPs when the discourse referent is known to the addressee but not active in the discourse (Kimmelman (2014: 56), shown in Figure 18.1a for NGT). Indefiniteness is marked in LSC by sucking the cheeks in and pulling the mouth ends down, sometimes combined with a shrug (Barberà (2015), shown in Figure 18.1b).

a. Definiteness in NGT   b. Indefiniteness in LSC

Figure 18.1   (In)definiteness non-manual marking in NGT and LSC (image in (b) from Barberà 2015: 147, Figure 40; © De Gruyter Mouton, reprinted with permission)

Particular non-manual markings have been attested for the specific vs. non-specific distinction. In HKSL, specificity is marked with eye gaze towards the addressee, and non-specificity is marked with round protruded lips, lowered eyebrows, and a visible bilabial sound (Tang & Sze 2002). In the latter interpretation, eye gaze follows the path of the hand, suggesting that there is no localized referent in signing space (see Perniss, Chapter 17). Specificity in ASL is marked with a direct eye gaze to the spatial location, while non-specificity is marked with a darting eye gaze generally towards an upward direction (Bahan 1996). Similar to ASL, non-specificity in LSC is marked with a darting eye gaze towards the upper frontal plane co-occurring with the NP (Barberà 2015).

Figure 18.2   Non-specificity non-manual marking in LSC (Barberà 2015: 189, Figure 54; © De Gruyter Mouton, reprinted with permission)

Besides the fact that sign languages employ complex manual and non-manual marking to mark definiteness and specificity, this section has shown that the three different types of derivational bases from which indefinite markers are derived are also found in sign languages. Table 18.1 summarizes each type of marking as found so far in the few sign languages for which definiteness and specificity have been analyzed. Further studies with broader signed data sets will surely extend the present description.

Table 18.1 Derivational bases of indefinite markers in different sign languages

	ASL	BSL	DGS	HKSL	LSC	NGT
Interrogative pronouns	✓		Combination		✓	Combination
Generic ontological-category nouns					✓	
Numeral 'one'	✓	✓		✓	✓	

18.2.2 Order of signs within the noun phrase

The internal order of signs in the NP is an important requirement that contributes to particular semantic readings (see also Abner, Chapter 10). Two aspects are crucial: the position of the index sign with respect to the nominal and the modification of determiners and cardinal signs. Bare nouns are also significant in the interpretation of (in)definiteness in sign languages, and they are further treated in Section 18.3.1. Prenominal index signs, as in (15a), have been argued to function as a definite article in some sign languages like ASL (Bahan et al. 1995; MacLaughlin 1997; Wilbur 2008), whereas the postnominal index functions as an adverbial and does not display a definiteness restriction (15b).

(15)   a.   **IX WOMAN** IX ARRIVE EARLY
            'The/That woman there arrived early.'
        b.   JOHN SEE **MAN IX**
            'John saw a man there.'   (ASL, Bahan et al. 1995: 3)

Other authors have previously claimed for different sign languages that an index sign co-occurring with a noun is used to express prominence or topicality of the corresponding discourse referent (Engberg-Pedersen (1993) for DSL; Winston (1995) for ASL; Rinfret (2009) for Quebec Sign Language). This means that the most prominent discourse referent at a particular point in discourse will co-occur with an index sign when it is first mentioned, and this may be analyzed in terms of its effects in the ongoing discourse. On a different view, Zimmer & Patschke (1990) for ASL and Bertone (2009) for LIS explicitly claim that an index sign directed to the signing space specifies the noun it co-occurs with. However, no further comments on what is meant by specificity nor which properties are encompassed by it are given. As will be shown in Section 18.2.3, in LSC, the determiner index sign is not required within a definite NP, but rather it co-occurs with specific and topical NPs (Barberà 2015).

The order of nominal modification has revealed to be furthermore relevant in definiteness distinctions. Bringing together corpus data and elicited data, Mantovan (2017) shows that when the sign ONE in LIS appears before the noun, it is often ambiguous between the determiner and the cardinal status. When ONE follows the noun, it is associated with the quantificational reading, and it does not combine with the typical indefinite non-manual marker, which consists in pulling the mouth ends down (Figure 18.1b).

The interpretation of cardinals in LIS also varies according to the distribution of the NP. Mantovan (2017) shows that both prenominal and postnominal cardinals trigger an indefinite interpretation. For the definite reading to arise, only the postnominal cardinal or a complex NP formed by a noun, a cardinal, and a classifier are possible. The non-manuals are crucial to disambiguate a postnominal cardinal. Within an indefinite interpretation, the NP is usually accompanied by backward-tilted head and raised eyebrows (Figure 18.3a). Within a definite interpretation, the postnominal cardinal is accompanied by squinted eyes, lowered eyebrows, and chin down (Figure 18.3b).

a. Indefinite non-manual marking   b. Definite non-manual marking

Figure 18.3   (In)definiteness non-manual marking in LIS (Mantovan 2017: 174; images © De Gruyter Mouton, reprinted with permission)

2.3 Modulations in signing space

The (non-)specificity distinction is overtly expressed in the use of signing space in LSC.[5] Discourse referents that are specific are localized at a low R-locus. In contrast, discourse referents that are non-specific are localized at a high R-locus.[6] This is shown in the semi-minimal pair found below.[7] The discourse referent in (16a) is localized at a low R-locus (Figure 18.4a). It corresponds to a particular individual, which is identifiable by the signer, and thus triggers a specific interpretation. In contrast, the discourse referent in (16b) is localized at a high R-locus (Figure 18.4b). It does not correspond to a particular individual (therefore it is not identifiable by the signer), and a non-specific interpretation arises.

(16) a.   GROUP$_{lo.a}$ FRIEND **SOME$_{lo.a}$** INSIDE IX-3$_c$ HIDE DURING YEAR-TWO
           'Some of the friends were hidden there for two years.' ($\rightarrow$ specific interpretation)
      b.   IX-3$_{pl.up.b}$ **SOME$_{up.b}$** DENOUNCE-3$_{up.b}$ IX-3$_c$ THERE-IS
           'Someone denounced they were there.' ($\rightarrow$ non-specific interpretation)
                                                                    (LSC, Barberà 2015: 162–164)

a. NP localized at a low R-locus   b. NP localized at a high R-locus
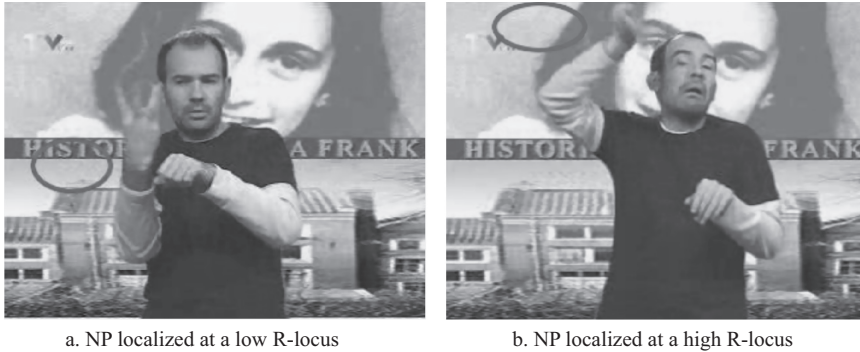
Figure 18.4   Two R-loci articulated on the frontal plane (Barberà 2015: 174, Figures 49 & 50; © De Gruyter Mouton, reprinted with permission)

The articulation of signs directed to the signing space also varies depending on the direction and, more specifically, on the interpretation they receive. Signs directed towards low R-loci have a tensed realization and are directed towards a particular point in space. In such cases, a specific reading arises. Signs directed to high R-loci, which correspond to a non-specific interpretation, are non-tensed, have a vague realization, and are directed towards a more widespread area rather than a particular spatial location (cf. Barberà (2015) for a distinction between strong and weak localization). This resembles the articulation of R-loci in ASL to express definiteness. According to MacLaughlin (1997), while the definite determiner in ASL accesses a point in signing space, the indefinite determiner involves an articulatory movement within a small region.

A solid grammatical test to distinguish between specific and non-specific readings is based on the possibility of having a co-referential pronoun. Only specific NPs establish an R-locus, which may be referred back to by an anaphoric pronoun in subsequent discourse (Barberà 2016). In contrast, intensional contexts in which the sender is referring to a non-specific discourse referent allow a co-referential pronoun as long as they are embedded under an operator, like a modal verb. For the LSC case, NPs localized at a low R-locus may have a co-referential pronoun in further discourse, corresponding to a specific interpretation (17). When the NP is localized at a high R-locus, the co-referential pronoun alone is not felicitous (18a), as it needs to be embedded under a modal verb, like MUST, and expressed as an overt or as a null pronoun (18b).

(17)   CAT IX-3_{lo}, IX1 WANT BUY. IX-3_{lo} LEG BIG CL:'big-legs'.
       'I want to buy a certain cat$_{spec}$. It has long legs.'   (LSC, Barberà 2016: 30)

(18)   a.   CAT IX-3_{up}, IX1 WANT BUY. #IX-3_{up} LEG BIG CL:'big-legs'.
         'I want to buy a cat$_{non-spec}$. #It has long legs.'
    b.   CAT IX-3_{up}, IX1 WANT BUY. MUST LEG BIG CL:'big-legs'.
         'I want to buy a cat$_{non-spec}$. It must have long legs.'   (LSC, Barberà 2016: 30)

18.3 Types of definiteness and specificity

18.3.1 Definiteness: familiarity and uniqueness

In most sign languages studied to date, the use of signing space plays a crucial role in representing the referential status of discourse referents. Determiners and the lack of them have an impact in the interpretation of the co-occurring noun. De Vriendt & Rasquinet (1990) observe that sign languages generally do not make use of determiners in generic NPs. Since the expression of index signs attributes some referential properties to the NP, generic statements do not co-occur with an index sign, and hence, the entity is not localized in space. In LSC, bare nouns may assume a generic interpretation if they are not localized in space (Barberà & Quer 2015). As shown in the minimal pair below, when the NP is localized in the signing space, it is understood as referential (i.e., as denoting a specific dog, (19a)), rather than generic (19b).

(19) a. **DOG**_a CHARACTER OBEDIENT+++
       'That dog is obedient.'
   b. **DOG** CHARACTER OBEDIENT+++
       'Dogs are obedient.'   (LSC, Barberà & Quer 2015)

Carlson & Sussman (2005) propose a distinction between strong and weak definites based on the fact that weak definites do have a reference but not a uniquely identifiable one (see also Schwarz 2009). The strong definite in (20a) refers to a particular and specific book, while the weak definite (20b) does not need a uniquely identifiable entity to be understood.

(20) a. I'll read **the book** when I get home.
   b. I'll read **the newspaper** when I get home.

Based on an experimental setting, Machado de Sá et al. (2012) show that in Brazilian Sign Language (Libras) the definiteness weak/strong distinction is related to different spatial localization. While strong definites are overtly marked by localizing the corresponding NP in a marked lateral location in signing space ('determined signing space', according to their terminology), weak definites are encoded by a lack of localization of the NP in signing space. This neutral use of space is an overt marking of weak definites. For ASL, similar results have been obtained (Irani 2018; based on Schwarz 2009). The strong definite article in ASL is expressed with an NP preceded by an index sign. This is an instance of bridging and corresponds to the notion of familiarity; that is, the definite NP is an indication of anaphoric expression or reference that is shared by sender and addressee. In contrast, the weak definite article in ASL is encoded by a bare NP. This corresponds to the notion of uniqueness; that is, the definite NP denotes a unique referent in the relevant universe.[8]

18.3.2 Specificity: scope, epistemicity, and partitivity

The different kinds of specific indefinites have been extensively discussed in the literature (Von Heusinger 2002, 2011). From among the various types of specific indefinites, the basic three primitives are considered here following Farkas (2002), namely scope, epistemicity, and partitivity.

Scopal specificity is considered to distinguish indefinite NPs that are bound to an operator (like a verb of propositional attitude, negation, or a quantifier) from those which are not (Matthewson 1998; Farkas 2002; Ionin 2006). Under the reading in (21a), there is a particular Norwegian woman, and Frank wants to marry her. This corresponds to a wide scope reading, and a specific interpretation arises. Under the reading in (21b), Frank's desire is to marry a woman who has Norwegian nationality, but he still has not found anyone. This corresponds to a narrow scope reading, and a non-specific interpretation arises. The indefinite is interpreted inside the modal verb 'want'. This is why the only felicitous continuation to get a non-specific reading requires the modal operator 'will'.

(21) Frank wants to marry **a Norwegian**.
    a. He met her last year. (→ there is a particular Norwegian)
    b. He will move to Norway to meet someone.

In sign languages, scope distinctions may be expressed explicitly with both the use of overt quantifiers and a complex interaction with the signing space. In RSL, for instance, when two or more quantifiers occur within the same clause, scope ambiguities may arise depending on the quantifiers involved (Kimmelman 2017). For instance, when both the subject and the object contain numerals, the cumulative interpretation is the only acceptable one (22a). In contrast, use of the distributive quantifier EVERY and/or the distributive locations for the object forces a wide scope interpretation of the subject (22b) ('er' = eyebrow raise).

(22) a. $\overline{\text{GIRL THREE}}^{\text{er}}$ PAINT FINISHED $\overline{\text{FLOWER TEN}}^{\text{er}}$
        'Three girls painted ten flowers.'
        (→ cumulative reading only: group of three girls painted a group of ten flowers)
  b. THREE GIRL **EVERY** $\overline{\text{IX}_{\text{pl}} \text{ PAINT FINISHED FLOWER}}^{\text{er}}$ **TEN-DISTR**
        'Three girls painted ten flowers each.'   (RSL, Kimmelman 2017: 827)

Moreover, when the subject contains the quantifier EVERY or ALL, and the object is a singular indefinite NP, two different scopes are possible (23a,b). However, if the subject is a bare NP, and the object contains a universal quantifier, then the universal quantifier has to take narrow scope (24).

(23) $\overline{\text{VACATION STUDENT EVERY IX}_{\text{pl}}}^{\text{er}}$ READ BOOK PUSHKIN POSS
     'During the vacation every student read a book by Pushkin.'
     a. wide scope: one > every, everyone read the same book
     b. narrow scope: every > one, everyone read one book
                                    (RSL, Kimmelman 2017: 828)

(24) WOMAN READ BOOK ALL
     'A woman read all the books.' (one > all)   (RSL, Kimmelman 2017: 828)

LSC has two indefinite pronouns, which show a different scope behavior with respect to the adverb TWO TIMES (Barberà & Cabredo Hofherr 2017). While the indefinite pronoun

ONE$_{up}$ only allows wide scope reading (25a), WHO^SOME$_{up}$ allows both wide and narrow scope readings (25b).

(25)   a.   **ONE$_{up}$** IX1 BIKE 1-STEAL-3$_{up}$+++ TWO TIMES
             'Someone stole my bike two times.' (someone > 2 times)

       b.   **WHO^SOME$_{up}$** IX1 BIKE 1-STEAL-3$_{up}$+++ TWO TIMES
             'Someone stole my bike two times.'
             i.   someone > 2 times
             ii. 2 times > someone   (LSC, Barberà & Cabredo Hofherr 2017: 97)

However, the interaction of the signing space with the pronoun WHO^SOME disambiguates the two potential readings. In LSC, the establishment of two different R-loci for the subject explicitly marks the distribution over the subject, resulting in a reading where the indefinite subject co-varies with the stealing event (narrow scope reading). In (26), the agreement verb STEAL is inflected with two lateral R-loci, and this triggers a narrow scope reading, namely 'there were two times in which someone stole my bike'.

(26)   WHO^SOME$_{up}$ IX1 POSS BIKE **1-STEAL-3$_{up.a}$ 1-STEAL-3$_{up.b}$** TWO TIMES
        'They stole my bike two times.' (2 times > someone)
                                                  (LSC, Barberà & Cabredo Hofherr 2017: 97)

Moreover, in LSC, co-variation with the event is also possible. With WHO^SOME, when there is quantification over the event (here expressed with the adverb ALWAYS), the subject co-varies with the event (27a). The stealing event has happened many times, and the subject of each event has been different. In contrast, with the pronoun ONE, there is no co-variation of the subject with respect to the event (27b). Therefore, the same stealing event is produced by the same non-specific referent.

(27)   a.   BUILDING IX POSS-1 OFFICE DANGER. **WHO^SOME$_{up}$** STEAL-3$_{up}$ MONEY ALWAYS.
             'The building of my office is very dangerous. They always steal money.'
       b.   BUILDING IX POSS-1 OFFICE DANGER. **ONE$_{up}$** STEAL-3$_{up}$ MONEY ALWAYS.
             'The building of my office is very dangerous. Someone always steals money.'
                                                  (LSC, Barberà & Cabredo Hofherr 2017: 101)

Epistemic specificity, also known as identifiability, is related to the identification of the discourse referent (Fodor & Sag 1982; Kamp & Bende-Farkas 2006). It is defined as the property of those indefinite NPs that are identifiable by the sender, that is, those entities that are known and/or inherently identifiable. The example in (28) shows an ambiguous sentence. The reading in (28a) corresponds to an epistemically specific discourse referent, which is thus identifiable by the sender. The reading in (28b) corresponds to an epistemically non-specific and unidentifiable discourse referent.

(28)   **A student** cheated on the syntax exam.
       a.   It was the blond lady that always sits in the back row.
       b.   I wonder who it was.

Epistemic indefinites have not yet been studied in detail in sign languages. Nevertheless, the field of epistemic modality has recently started to become an attractive research area (Wilcox & Shaffer 2006). Epistemic modality indicates the degree of certainty with which one makes an assertion. It is concerned with the speaker's attitude towards the actual proposition, judging the truth of the sentence and referring to the probability of the state of affairs or event described by the utterance. Thus, epistemic modality addresses what is known or believed and indicates how much certainty or evidence a speaker has for his utterance.

Epistemic modality in sign language is coded by a combination of manual signs and non-manual markers (Shaffer et al. 2011). Interestingly, for the purposes of this chapter, the non-manuals resemble some of the marking expressing non-specific indefiniteness, as presented in Section 18.2.1 As for manual signs, the position of a modal in an utterance corresponds to the modal's scope and to its role in the discourse (Wilcox & Shaffer 2006). Modals with scope over only the verb appear near the verb, while modals with clausal scope appear near the end of the clause, in the comment of topic-marked constructions. In epistemic modality, the modal typically appears at the end of the utterance. Moreover, Wilcox & Shaffer (2006) observe that in ASL, certain deontic modals, like SHOULD and POSSIBLE, can also be used to express epistemic meaning. The following example illustrates this for SHOULD. The authors note that the non-manual markers that accompany the modal are brow furrow and head nod.

(29) LIBRARY HAVE DEAF LIFE **SHOULD**
      'The library should have *Deaf Life*. / I'm sure the library has *Deaf Life*.'
      (ASL, Wilcox & Shaffer 2006: 226)

In New Zealand Sign Language (NZSL), some frequently observed non-manual markers of modality include lowered corners of the mouth, raised or furrowed brows, eye squint, shoulder shrug, and the movement of the head and/or torso backwards or to one side (McKee & Wallingford 2011: 232). As for DGS, the non-manuals indicating 'probably' scope over the entire proposition and include affirmative head nods, a specific mouth pattern, and squinted eyes. Importantly, these non-manuals may express the epistemic meaning even in the absence of the manual adverbial (Herrmann 2013). For Austrian Sign Language (ÖGS), Lackner (2013) discusses one non-manual possibility marker in the form of a sideward head tilt and/or a sideward body lean; the resulting meaning can be paraphrased as 'maybe' because it expresses the potentiality/possibility of an unrealized event.

Finally, partitive specificity refers to indefinite NPs that have a restricted set as a possible value. That is, they receive a partitive interpretation when the denotation of the NP is included within a given set (as previously shown by Enç (1991) for Turkish; see example (5)). The partitive and non-partitive pairs in (30) and (31), respectively, are quite similar in interpretation. The main difference is that in the case of overt partitives (30), the quantification necessarily ranges over some specific, non-empty, contextually fixed set.

(30) a. three **of the books**
      b. one **of the books**
      c. some **of the books**

(31) a. three books
    b. one book
    c. some books

As seen in Section 18.2.3, in LSC, signs may be localized at both a low and a high R-locus. When indefinite signs are localized at a low R-locus, a specific reading arises, which may have a partitive interpretation, where the discourse referents belong to a restricted set. The interpretation of the discourse referents conveyed in (32) is restricted by a particular domain of reference. In contrast, when indefinite signs are localized at high R-loci and thus establish the NP in a high area, a non-specific and non-partitive interpretation arises (33).

(32) a. HOUSE **SOME$_{lo}$**
      'some of the houses'
    b. HOUSE **ONE$_{lo}$**
      'one of the houses'
    c. HOUSE **ANY$_{lo}$**
      'any of the houses'   (LSC, adapted from Barberà 2015: 181)

(33) a. HOUSE **SOME$_{up}$**
      'some houses'
    b. HOUSE **ONE$_{up}$**
      'one house'
    c. HOUSE **ANY$_{up}$**
      'any house'   (LSC, adapted from Barberà 2015: 181)

ASL overtly marks domain restriction with respect to height in signing space (Davidson & Gagne 2019). When there is a restricted domain, the pronoun is signed low, and the interpretation of the pronoun refers to the entity or entities included in the domain. A high pronoun, in contrast, refers to the maximum set. As shown in the following example, the pronoun may be directed to a low R-locus (34a) and trigger a partitive interpretation: it refers to the members of the family. A pronoun directed to a mid R-locus (34b) refers to the members of the nudist colony. The interpretation is still restricted, but to a wider domain. Last, a pronoun may also be directed to a high R-locus (34c) and refer to the maximum set of entities.

(34) *Context: family accidentally visits a nudist colony. She comments:*
    a. POSS-1 FAMILY **IX-ARC$_{lo}$** WEAR CLOTHES
      'My family, they wear clothes.'
    b. **IX-ARC$_{mid}$** NOT WEAR CLOTHES
      'They all (here) don't wear clothes.'
    c. **IX-ARC$_{up}$** WEAR CLOTHES
      'They all (people in general) wear clothes.'   (ASL, Davidson & Gagne 2019)

Interestingly, LSC allows collocation between specificity and domain restriction (Barberà 2015). Partitive constructions in LSC may be combined with determiners conveying specific as well as non-specific discourse referents. In such constructions, the partitive phrase

first establishes the domain of quantification. The quantifier sign then conveys the (non-)specific reading. In (35), the domain of quantification is first established at a low R-locus (Figure 18.5a), and the specific determiner that ranges over it is uttered afterwards (Figure 18.5b).

(35) **BOOK IX-3$_{pl.lo}$**, IX1 NEED **ONE$_{lo}$**.
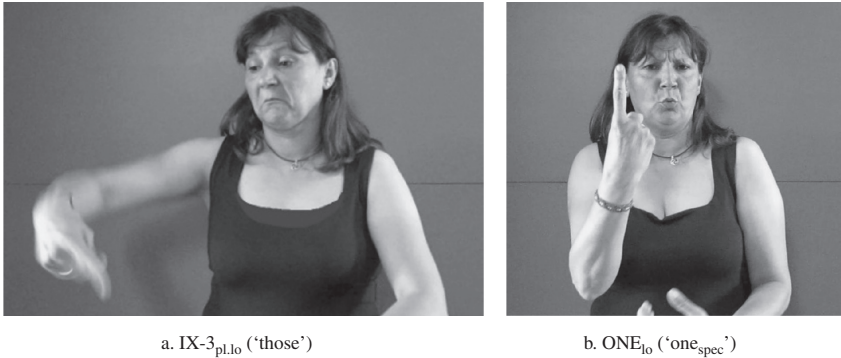   'I need one$_{spec}$ of those books.'   (LSC, Barberà 2015: 184–185)

a. IX-3$_{pl.lo}$ ('those')   b. ONE$_{lo}$ ('one$_{spec}$')

Figure 18.5 Partitive construction with a specific determiner in LSC (Barberà 2015: 185, Figure 51; © De Gruyter Mouton, reprinted with permission)

The combination of a non-specific determiner with a partitive construction is grammatical in LSC. In (36), the domain is also first established at a low R-locus (Figure 18.6a), and afterwards the non-specific determiner is articulated at a high R-locus (Figure 18.6b).

(36) **BOOK IX-3$_{pl.lo}$**, IX1 NEED **ONE$_{up}$**.
       'I need one$_{non.spec}$ of those books.'   (LSC, Barberà 2015: 184–185)

a. IX-3$_{pl.lo}$ ('those')   b. ONE$_{up}$ ('one$_{non.spec}$')

Figure 18.6 Partitive construction with non-specific determiner in LSC (Barberà 2015: 185, Figure 52; © De Gruyter Mouton, reprinted with permission)

18.4 Discussion and concluding remarks

The present chapter has focused on a broad range of phenomena involving referential uses of manual and non-manual markers that convey different types of definiteness and specificity. The markers and their simultaneous interaction reveal something deeper about the options that natural sign languages provide for organizing the referential system, which comes with various theoretical implications. The fact that sign languages can overtly distinguish different types of definiteness and specificity shows that they are provided with particular resources to express the different theoretical notions related to reference. The different referential statuses of discourse referents are instantiated with varied markings, mostly based on lexical determiners, the order of signs in the NP, particular non-manual marking, and the modulation of signs in the signing space. The different markings may be specialized in conveying particular meanings. On the one hand, for instance, the multiple articulators involved in the realization of non-manual markers have been shown to be determinant in the expression of indefiniteness and in conveying epistemic knowledge of the discourse referent referred to. On the other hand, the complex use of signing space has turned out to be crucial for the distinctions of (non-)specificity, and more concretely in the different scope behaviors and in partitive contexts.

However, a word of caution is in order. As shown in the introduction section, definiteness and specificity are interrelated notions. The results reported in this chapter are not based on minimal pairs and therefore what is reported as a distinction in specificity or definiteness, or one of their subtypes, could potentially be analyzed differently along one of the interrelated dimensions. While this is already the case in spoken language data, for sign language, this aspect is of special concern because the markers discussed may be simultaneously expressed. Determiners, the order of signs, non-manuals, and the use of signing space are all separate facets of any given NP in a sign language utterance. For the specific case of sign languages, the field would gain a fair awareness of how the particular reference system of a given sign language works through more direct comparisons across languages via minimal pairs or, alternatively, via quantitative overviews of corpora across phenomena in order to get a better sense of which semantic and pragmatic distinctions correspond to which markers. An example of this is the case of the ASL sign SELF/G, shown in (6), which is meant to mark definiteness. However, definiteness may already be contributed by the possessive pronoun, the non-manual marking, or the use of signing space. A similar case arises with the wide scope interpretation shown in (22b), where we may wonder whether the reading is triggered by the distributive quantifier EVERY only, by the distributive locations of the numeral TEN-DISTR, or by the combination of the two. Also, the role of the non-manuals should be considered in order to disentangle the specialized meaning of each marker.

The analysis of sign languages contributes to the theoretical study of definiteness and specificity by providing a perspective of the phenomena incorporating the characteristics afforded by the visual-gestural modality. Much remains to be said about a precise analysis of index signs and non-manual markers, for instance. Moreover, it is still under-investigated how definiteness and specificity are encoded in shared sign languages, which have a preference for an absolute frame of reference that uses conventional absolute relations (de Vos & Pfau 2015), in contrast with urban sign languages, which have a preference for a relative frame of reference. Yet, it seems certain that a broader cross-linguistic and cross-modality perspective on reference contributes substantially to our theoretical understanding in this domain.

Notes

1 This chapter uses the term noun phrase (NP). See Abner, Chapter 10, for an analysis of the Determiner Phrase in sign languages.

2 The sign SELF/G is articulated with a fist with thumb extended on the dominant hand in contact with the non-dominant hand, which has the index finger extended. We follow Fischer & Johnson 2012[1982] for the name of the gloss.

3 This chapter follows the usual glossing conventions in the sign language literature, representing manual signs by the capitalized word corresponding to the translation of the sign. The abbreviations used in the glosses are the following (# is a placeholder for the loci in signing space corresponding to 1st, 2nd, and 3rd person referents): IX# (index pointing sign); #-VERB-# (verb agreeing with subject and object); sub-indices mark localization in signing space: 'lo' (low), 'up' (up), 'ip' (ipsilateral); 'cl' (contralateral); 'c' (center); lower indexed letters (a, b, …) mark co-reference relations. Reduplication of signs is indicated by '+++'.

4 A discourse referent may be localized at a certain spatial location in signing space and may be referred back to later in the discourse. Such a spatial location associated with an entity is called 'referential locus' or 'R-locus' (Lillo-Martin & Klima 1991).

5 Very recent research shows that high R-loci also correspond to non-specificity, impersonal, and arbitrary readings in Turkish Sign Language (Kelepir et al. 2018), French Sign Language (Garcia et al. 2018), and Hong Kong Sign Language (Sze & Tang 2018).

6 The distinction between low vs. high loci analyzed as encoding the referential status of the discourse referents, and more concretely as marking (non-)specificity, goes beyond the iconic function expressing hierarchical and iconic relations (see Morales-López et al. (2005) and Barberà (2015) for LSC; Liddell (1990), Schlenker & Lamberton (2012), and Schlenker et al. (2013) for ASL; and Zeshan (2000) for Indo-Pakistani Sign Language).

7 This semi-minimal pair is extracted from semi-spontaneous data rather than elicited data. This is the reason why the minimal pair is not exact.

8 This does not imply that bare nouns in sign language only have a weak definite reading, but rather that this is one possible reading which contrasts with a full NP (IX+noun) expressing a strong definite reading. In fact, bare nouns may also have an indefinite reading in LIS (Mantovan 2017) and a definite reading in LSC (Barberà & Quer 2018).

References

Abbott, Barbara. 1999. Support for a unique theory of definite descriptions. In Tanja Matthews & Devon Strolovitch (eds.), *Proceedings from Semantics and Linguistic Theory IX*, 115. Ithaca, NY: Cornell University.

Bahan, Benjamin. 1996. Nonmanual realization of agreement in American Sign Language. Boston: Boston University PhD dissertation.

Bahan, Benjamin, Judy Kegl, Dawn MacLaughlin, & Carol Neidle. 1995. Convergent evidence for the structure of determiner phrases in American Sign Language. In Leslie Gabriele, Debra Hardison, & Robert Westmoreland (eds.), *FLSM VI. Proceedings of the Sixth Annual Meeting of the Formal Linguistics Society of Mid-America, Vol. 2*, 1–12. Bloomington: Indiana University Linguistics Club.

Barberà, Gemma. 2015. *The meaning of space in sign language. Reference, specificity and structure in Catalan Sign Language discourse*. Berlin and Nijmegen: De Gruyter Mouton & Ishara Press.

Barberà, Gemma. 2016. Indefiniteness and specificity marking in Catalan Sign Language (LSC). *Sign Language & Linguistics* 19(1). 1–36.

Barberà, Gemma & Patricia Cabredo Hofherr. 2017. Two indefinite pronouns in Catalan Sign Language (LSC). *Proceedings of Sinn und Bedeutung* 21 (2016), University of Edinburgh.

Barberà, Gemma & Brendan Costello. 2017. ¿Cómo se expresa la referencia impersonal? Análisis contrastivo entre lengua de signos catalana (LSC) y lengua de signos española (LSE). *Actas del Congreso CNLSE 2015*, 49–63. Madrid: CNLSE.

Barberà, Gemma & Josep Quer. 2013. Impersonal reference in Catalan Sign Language (LSC). In Laurence Meurant, Aurélie Sinte, Mieke van Herreweghe, & Myriam Vermeerbergen (eds.), *Sign language research, uses and practices: Crossing views on theoretical and applied sign language linguistics*, 237–258. Berlin and Nijmegen: De Gruyter Mouton & Ishara Press.

Barberà, Gemma & Josep Quer. 2015. *Genericity in Catalan Sign Language (LSC)*. Paper presented at Workshop on Sign Languages and R-impersonal Pronouns. Université Paris 8, February 6.

Barberà, Gemma & Josep Quer. 2018. Nominal referential values of semantic classifiers and role shift in signed narratives. In Annika Hübl & Markus Steinbach (eds), *Linguistic foundations of narration in spoken and sign languages*, 251–274. Amsterdam: John Benjamins.

Bertone, Carmela. 2009. The syntax of noun modification in Italian Sign language (LIS). *University of Venice Working Papers in Linguistics* 19. 7–28.

Bhat, Darbhe N.S. 2005. *Pronouns*. Oxford: Oxford University Press.

Carlson, Greg & Rachel Sussman. 2005. Seemingly indefinite definites. In Stephan Kepsar & Marga Reis (eds.), *Linguistic evidence,* 71–86. Berlin: De Gruyter Mouton.

Chung, Sandra & William A. Ladusaw. 2004. *Restriction and saturation*. Cambridge, MA: MIT Press.

Conlin, Frances, Paul Hagstrom, & Carol Neidle. 2003. A particle of indefiniteness in American Sign Language. *Linguistic Discovery* 2(1). 1–21.

Cormier, Kearsy. 2012. Pronouns. In Roland Pfau, Markus Steinbach, & Bencie Woll (eds.), *Sign language: An international handbook*, 227–244. Berlin: De Gruyter Mouton.

Dachkovsky, Svetlana & Wendy Sandler. 2009. Visual intonation in the prosody of a sign language. *Language and Speech* 52(2/3). 287–314.

Davidson, Kathryn & Deanna Gagne. 2019. "More is up" for domain restriction in ASL. Manuscript, Harvard University and Gallaudet University.

de Vos, Connie & Roland Pfau. 2015. Sign language typology: The contribution of rural sign languages. *Annual Review of Linguistics* 1. 265–288.

De Vriendt, Sera & Max Rasquinet. 1990. The expression of genericity in sign language. In Siegmund Prillwitz & Tomas Vollhaber (eds.), *Current trends in European sign language research: Proceedings of the 3rd European Congress on Sign Language Research*, 249–255. Hamburg: Signum Verlag.

Enç, Mürvet. 1991. The semantics of specificity. *Linguistic Inquiry* 22(1). 1–25.

Engberg-Pedersen, Elisabeth. 1993. *Space in Danish Sign Language. The semantics and morpho-syntax of the use of space in a visual language*. Hamburg: Signum-Verlag.

Farkas, Donka. 2002. Specificity distinctions. *Journal of Semantics* 19. 1–31.

Fischer, Susan & Robert Johnson. 2012[1982]. Nominal markers in ASL. *Sign Language & Linguistics* 15(2). 243–250.

Fodor, Janet Dean & Ivan A. Sag. 1982. Referential and quantificational indefinites. *Linguistics and Philosophy* 5. 355–398.

Garcia, Brigitte, Marie-Anne Sallandre, & Marie-Thérèse L'Huillier. 2018. Impersonal human reference in French Sign Language. *Sign Language & Linguistics* 21(2). 307–333.

Geraci, Carlo. 2012. *Commentary on "Impersonal reference in Catalan Sign Language"*. Workshop on Impersonal Human Pronouns. CNRS/Paris 8. November 8.

Haspelmath, Martin. 1997. *Indefinite pronouns*. Oxford: Oxford University Press.

Heim, Irene. 1982. The semantics of definite and indefinite noun phrases. Amherst, MA: University of Massachusetts PhD dissertation.

Herrmann, Annika. 2013. *Modal and focus particles in sign languages. A cross-linguistic study*. Berlin: De Gruyter Mouton.

Ionin, Tania. 2006. This is definitely specific: Specificity and definiteness in article systems. *Natural Language Semantics* 14. 175–234.

Irani, Ava. 2018. On (in)definite expressions in American Sign Language. In Ana Aguilar-Guevara, Julia Pozas Loyo, & Violeta Vázquez Rojas Maldonado (eds.), *Definiteness across languages*. Berlin: Language Science Press.

Kadmon, Nirit. 1990. Uniqueness. *Linguistics and Philosophy* 13. 273–324.

Kamp, Hans. 1981. A theory of truth and semantic representation. In Jeroen A.G. Groenendijk, Theo M.V. Janssen, & Martin B.J. Stokhof (eds), *Formal methods in the study of language*, 227–322. Amsterdam: Mathematical Centre.

Kamp, Hans & Ágnes Bende-Farkas. 2006. *Epistemic specificity from a communication-theoretical perspective*. Manuscript, Universität Stuttgart.

Kelepir, Meltem, Asli Özkul, & Elvan Tamyürek Özparlak. 2018. Agent-backgrounding in Turkish Sign Language (TİD). *Sign Language & Linguistics* 21(2). 257–283.

Kimmelman, Vadim. 2014. Information structure in Russian Sign Language and Sign Language of the Netherlands. Amsterdam: University of Amsterdam PhD dissertation.

Kimmelman, Vadim. 2017. Quantifiers in Russian Sign Language. In Denis Paperno & Edward L. Keenan (eds.), *Handbook of quantifiers in natural languages, Vol. 2*, 803–855. Dordrecht: Springer.

Lackner, Andrea. 2013. Linguistic functions of head and body movements in Austrian Sign Language (ÖGS). A corpus-based analysis. Graz: University of Graz PhD dissertation.

Liddell, Scott. 1990. Four functions of a locus: Reexamining the structure of space in ASL. In Ceil Lucas (ed.), *Sign language research: Theoretical issues*, 176–198. Washington, DC: Gallaudet University Press.

Lillo-Martin, Diane & Edward S. Klima. 1991. Pointing out differences: ASL pronouns in syntactic theory. In Susan Fischer & Patricia Siple (eds.), *Theoretical issues in sign language research, Vol. 1: Linguistics*, 191–210. Chicago: University of Chicago Press.

Lyons, Christopher. 1999. *Definiteness*. Cambridge: Cambridge University Press.

Machado de Sá, Thaís Maira, Guilherme Lourenço de Souza, Maria Luiza da Cunha Lima, & Elidea Lúcia Almeida Bernardino. 2012. Definiteness in Brazilian Sign Language: A study on weak and strong definites. *Revista Virtual de Estudos da Linguagem* 10(19). 21–38.

MacLaughlin, Dawn. 1997. The structure of determiner phrases: Evidence from American Sign Language. Boston, MA: Boston University PhD dissertation.

Mantovan, Lara. 2017. *Nominal modification in Italian Sign Language*. Berlin: De Gruyter Mouton.

Mathur, Gaurav. 1996. *A presuppositionality marker in ASL*. Manuscript, MIT.

Matthewson, Lisa. 1998. *Determiner systems and quantificational strategies: Evidence from Salish*. The Hague: Holland Academic Graphics.

McKee, Rachel & Sophia Wallingford. 2011. 'So, well, whatever': Discourse functions of 'palm-up' in New Zealand Sign Language. *Sign Language & Linguistics* 14 (2). 213–247.

Morales-López, Esperanza, Rosa Maria Boldú-Menasanch, Jesús Amador Alonso-Rodríguez, Victoria Gras-Ferrer, & María Ángeles Rodríguez-González. 2005. The verbal system of Catalan Sign Language (LSC). *Sign Language Studies* 5(4). 441–496.

Partee, Barbara. 1970. Opacity, co-reference, and pronouns. *Synthèse* 21(3–4). 359–385.

Pfau, Roland & Markus Steinbach. 2006. *Modality-independent and modality-specific aspects of grammaticalization in sign languages* (*Linguistics in Potsdam* 24). Potsdam: Universitäts-Verlag. Available at: http://opus.kobv.de/ubp/volltexte/2006/1088/.

Rinfret, Julie. 2009. L'association spatiale du nom en langue des signes québécoise: formes, fonctions et sens. Montréal: Université du Québec à Montréal PhD dissertation.

Roberts, Craige. 2003. Uniqueness in definite noun phrases. *Linguistics and Philosophy* 26. 287–350.

Schlenker, Philippe & Jonathan Lamberton. 2012. Formal indices and iconicity in ASL. In Maria Aloni, Floris Roelofsen, Galit W. Sassoon, Katrin Schulz, Vadim Kimmelman, & Matthijs Westera (eds.), *Proceedings of the 18th Amsterdam Colloquium 2011, LNCS 7218*, 1–11. Berlin and Heidelberg: Springer Verlag.

Schlenker, Philippe, Jonathan Lamberton, & Mirko Santoro. 2013. Iconic variables. *Linguistics and Philosophy* 36(2). 91–149.

Schwarz, Florian. 2009. Two types of definites in natural language. Amherst, MA: University of Massachusetts PhD dissertation.

Shaffer, Barbara, Maria Josep Jarque, & Sherman Wilcox. 2011. The expression of modality: Conversational data from two signed languages. In Márcia Teixeira Nogueira & Maria Fabíola Vasconcelos Lopes (eds.), *Modo e modalidade. Gramática, discurso e interaçao*, 11–39. Fortaleza: Edições UFC.

Sze, Felix & Gladys Tang. 2018. R-impersonals in Hong Kong Sign Language. *Sign Language & Linguistics* 21(2). 284–306.

Tang, Gladys & Felix Sze. 2002. Nominal expressions in Hong Kong Sign Language: Does modality make a difference? In Richard P. Meier, Kearsy Cormier, & David Quinto-Pozos (eds.), *Modality and structure in signed and spoken languages*, 296–320. Cambridge: Cambridge University Press.

von Heusinger, Klaus. 2002. Specificity and definiteness in sentence and discourse structure. *Journal of Semantics* 19. 245–274.

von Heusinger, Klaus. 2011. Specificity. In Klaus von Heusinger, Claudia Maienborn, & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning*, 1024–1057. Berlin: De Gruyter Mouton.

Wilbur, Ronnie. 1996. *Focus and specificity in ASL structures containing self*. Paper presented at the Linguistic Society of America (LSA), Winter Meeting, San Diego, CA.

Wilbur, Ronnie. 2008. Complex predicates involving events, time and aspect: Is this why sign languages look so similar? In Josep Quer (ed.), *Signs of the time. Selected papers from TISLR 8*, 217–250. Hamburg: Signum Verlag.

Wilcox, Sherman & Barbara Shaffer. 2006. Modality in American Sign Language. In William Frawley (ed.), *The expression of modality*, 207–237. Berlin: De Gruyter Mouton.

Winston, Elisabeth. 1995. Spatial mapping in comparative discourse frames. In Karen Emmorey & Judy Reilly (eds.), *Language, gesture, and space*, 87–114. Mahwah, NJ: Lawrence Erlbaum.

Zeshan, Ulrike. 2000. *Sign language in Indo-Pakistan: A description of a signed language*. Amsterdam: John Benjamins.

Zeshan, Ulrike. 2004. Interrogative constructions in signed languages: Cross-linguistic perspectives. *Language* 80(1). 7–39.

Zimmer, June & Cynthia Patschke. 1990. A class of determiners in ASL. In Ceil Lucas (ed.), *Sign language research: Theoretical issues*, 201–210. Washington, DC: Gallaudet University Press.