

Chapter 4

On (in)definite expressions in American Sign Language

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This paper provides an analysis of the properties and distribution of the pointing sign *ix* and bare NPs in American Sign Language. I argue that *ix* followed by an NP when referring to a previously established locus is a strong definite article along the lines of Schwarz (2009; 2013). This claim goes contra previous analyses that draw parallels between *ix* and demonstratives (Koulidobrova & Lillo-Martin 2016). The data presented here also show that both bare NPs and *ix*+NPs double as definites and indefinites, which suggests that definiteness is not semantically encoded in the language. I further illustrate that the interaction of the use of bare NPs and *ix*+NPs indicates that the specification of a locus has an impact on the interpretation of an expression as being definite or indefinite. An *ix*+NP cannot refer back to a bare NP in the discourse due to the underspecification of a locus feature that characterizes bare NPs. These findings allow me to reanalyze the properties of the two kinds of nominals in the language.

1 Introduction

Definite and indefinite expressions in natural language are two widespread components of communication. Despite their ubiquitous presence, the way in which each language conveys these expressions can vary. For instance, English indefinites are typically viewed as being introduced by the article *a*, while *the* precedes definite NPs. The distinction does not stop there. Schwarz (2009) observes that languages can further divide categories of definite expressions into those that encode uniqueness and those that are anaphoric and familiar. There are also languages like Hindi, which lack overt determiners altogether. These types of languages have ensued a claim that their bare nominal expressions lack a DP layer,



as they do not encode pure indefinite readings (Dayal 2004). And finally, there has been a plethora of research at least since the late 1800s on the properties of definite and indefinite expressions in discourse (Frege 1892; Russell 1905; Kamp 1981; Heim 1982, i.a.). In this paper, I investigate a language that contributes to the discussion on definiteness in varying respects, while simultaneously allowing us to examine natural language expressed via a different modality.

American Sign Language (ASL) is generally claimed to be a language without overt determiners, but it signifies the relationship between nominal expressions in more than one manner. Nominal phrases can be expressed as bare NPs, or they can also be set up at locations in signing space through the use of loci. A language with more than one way of conveying nominals introduces another dimension in the goal to understand the realization of definite and indefinite reference in language.

Sign languages have been of interest in examining various linguistic phenomena due to their use of a different medium of communication and the visibility that signs provide to language through the use of this modality. Despite sign language research gaining momentum since Stokoe's initial work in the 1960s, much work is left to be done in terms of thoroughly describing fundamental aspects of these languages. This paper aims to deepen our knowledge of the array of possible alternatives through which definite and indefinite referents can be expressed.

Although recent work has shown interest in definite NPs in ASL, there has been some disagreement in the literature in determining their status (Bahan et al. 1995; Koulidobrova & Lillo-Martin 2016). Definiteness in ASL has been said to be expressed via the index marker, glossed as *ix*¹ (Bahan et al. 1995), despite indexing and *ix* having been described as performing multiple functions (e.g. Lillo-Martin & Klima 1990). In the sections to follow, I discuss the nature of definiteness, and explicate the behavior of *ix* in definite environments. My proposal is compatible with the analysis of loci as being composed of morpho-syntactic features. Previous work has focused on loci as overt manifestations of indices (Lillo-Martin & Klima 1990; Schlenker 2010). The analysis argued for here follows that line of work, while also focusing on bare NPs introducing indices. I show that ASL has two types of indices: one type that is introduced by NPs specified for a locus, and the other set of indices introduced by bare NPs, which are underspecified for loci. The interaction of these systems has consequences for

¹Throughout this paper, I refer to the pointing sign, i.e. the index marker, in ASL as *ix*. When referencing indices or an index, I am referring to the formal semantic indices introduced by NPs in the discourse.

the definite or indefinite interpretation of expressions. My proposal that loci are composed of features is motivated by previous work on locus re-use (Kuhn 2015), but follows Schlenker (2016) in adopting the featural variable view of loci, which ties in with my claims about definiteness in the language.

The ASL judgments provided in this paper are from three native signers who have been exposed to the language from birth. The consultants were presented with the target ASL sentences in the target language, and asked for grammaticality judgments and whether or not any particular construction was felicitous in ASL. They were also asked to provide the possible interpretations of each data point. Judgment reports of the data were preferred over examining data from more naturalistic sources such as corpora for two reasons: i) the circumstances in which the particular kinds of examples investigated in this paper would be found naturally occur infrequently, and ii) corpora do not allow for a study of infelicitous linguistic environments, which are crucial to the central idea of the proposal. It cannot be certain whether a construction that occurred with low frequency in a corpus is impossible in a given language or whether the opportunity to use it was simply not present.

This paper is structured as follows: first, I present an overview of previous work on definiteness in ASL, which focuses on the use of the index marker *ix*. Next, I take what has been previously discussed on *ix* and reanalyze it to draw parallels between *ix* and the two types of definite articles noted for numeral classifier languages (Jenks 2015). Even though *ix* can be seen as a strong definite article in the sense of Schwarz (2009), I will argue that ASL does not canonically encode definiteness lexically. Instead, there appears to be a more pragmatic force involved. *ix*+NP can be a definite or indefinite expression depending on whether it refers to another already introduced *ix*+NP at the same locus.

2 Background

The subsections below first discuss the general properties of *ix* when introducing loci in order to set the stage for developing an analysis of *ix*. I then present arguments for analyzing *ix* as a demonstrative (to be rejected). This background will be beneficial in discussing the behavior of *ix* and indefinites in the language. I first provide a description of some commonly known uses of loci; then, I present and jettison previous work on *ix* that argues for it as a demonstrative. Finally, I show that *ix* behaves differently when it is referring to a previously established locus, as opposed to when it is not.

2.1 Loci

Before diving into the details of previous analyses of IX, one must first understand its typical uses. A common use of the index marker is to make reference to entities. When an entity is first introduced in the discourse, the index (IX) can be used to establish a locus for the entity, which can later be referred to in the discourse (Klima & Bellugi 1979; Lillo-Martin & Klima 1990). By establishing a locus as the point of reference, the signer can simply point back with IX to the locus to refer back to the entity that was previously introduced. (1) is an example of such a use of IX.²

- (1) IX_a SARA_a IX_b STACY_b _aBOTH_b FRIENDS. IX_a LIKES IX_b.³
'Sara_i and Stacy_j are friends. She_i likes her_j.'

The sentence above illustrates how each locus is associated with an entity. In (1), locus a is associated with SARA while locus b is associated with STACY. (2) fleshes out the paradigm of loci uses. The examples also show that loci typically refer to the entities set up at that location.

- (2) a. WHEN IX_a SOMEONE_a LIVE WITH IX_b SOMEONE_b,
'When someone lives with someone,'
b. IX_a LOVE IX_b.
'the former loves the latter.'⁴ (adapted from Schlenker 2010: 13)

As seen in (2), the loci retain their referents, giving a meaning that can be translated as 'the former' and 'the latter' in English. Moreover, in addition to entities, IX can also be used to refer to VPs.

²Any examples without citation are elicited from my own fieldwork with native ASL signers.

³Signs are glossed in small capital letters as is standard in the literature. Loci are uniformly indicated with IX and a subscript both on IX itself and the nominal that follows. All cited examples have been adapted to fit this format.

⁴When the loci refer to the same signing space as below, they are infelicitous:

- (i) a. # IX_a LOVE IX_a
'the former loves the former.'
b. # IX_b LOVE IX_b
'the latter loves the latter.'

The reason for the unacceptability of these judgments results from standard assumptions about binding theory (Reinhart & Reuland 1993) and from the special reflexive morphology that is required for ASL in these cases (Meir 1998).

- (3) IX_a GET_a JOB_a DISJ/shift IX_b GO_b GRADUATE-SCHOOL_b. IX_a I CAN IX_b
IMPOSSIBLE.
'Get a job or go to graduate school? The former I can do, but the latter is impossible.' (Koulidobrova & Lillo-Martin 2016: 226)

The example in (3) shows that the use of IX is not restricted to entities. Once loci are established, one can use IX as many times as necessary in the discourse to refer back to the entity or proposition assigned at the locus.

2.2 Previous work

The most recent work on IX has argued for it to be a demonstrative (Koulidobrova & Lillo-Martin 2016), as opposed to a definite article (Bahan et al. 1995). Although in this paper I show evidence in favor of IX as a definite article, I first present parts of Koulidobrova & Lillo-Martin's analysis in order to discuss patterns in the language that my analysis aims to capture.

Koulidobrova & Lillo-Martin (2016) base their argument on the assumption that definite articles are licensed by uniqueness; however, the use of IX appears to be infelicitous in these instances.

- (4) FRANCE (#IX_a) CAPITAL_a WHAT.
'What is the capital of France?' (Koulidobrova & Lillo-Martin 2016: 234)
- (5) TODAY SUNDAY. DO-DO? GO CHURCH, SEE (#IX_a) PRIEST_a.
'Today is Sunday. What to do? I'll go to church, see the priest.'
(Koulidobrova & Lillo-Martin 2016: 234)

The above examples show that IX is not licensed by uniqueness. Although there is only one capital of France, IX in (4) is ungrammatical. Similarly, (5) disallows IX with PRIEST even when referring to a single priest in a church. This point will become relevant in the following sections when I propose my analysis. For now, I simply note that bare NPs are required in these uniqueness situations.

Another common use of definite articles in many languages is an anaphoric one. When IX+NP is not referring to a locus that has been previously established in signing space, it is unacceptable in anaphoric environments.

- (6) TODAY SUNDAY. DO-DO. GO CHURCH, SEE PRIEST. (#IX_a) PRIEST_a NICE.
'Today is Sunday. What to do? I'll go to church, see the priest. The priest is nice.' (Koulidobrova & Lillo-Martin 2016: 234)

In (6), IX is infelicitous with the second instance of *PRIEST* even when its first mention is present in the discourse. The inability of IX to appear in these cases can be explained under their account of IX being a demonstrative, since demonstratives are not licensed without a contrastive reading or a kind of demonstration. Based on the above examples with uniqueness and anaphoricity, it might be tempting to label the index marker as a demonstrative; however, in further sections, I show that although there are some similarities between IX and demonstratives, there are also differences between them. In foreshadowing the analysis described in this paper, I note that IX here attempts to make reference to a referent introduced by a bare NP, and not a referent that was previously established at a locus. I show in the following sections that the anaphoric cases of IX are indeed felicitous when referring to a previously mentioned NP with an associated locus. Moreover, I argue that IX when referring to previously used loci is best analyzed as a strong article definite along the lines of Schwarz (2009; 2013)

3 Two types of definites in ASL

This section presents the two types of definite articles described by Schwarz, the strong definite article and the weak definite article, which occur cross-linguistically. I argue here that the ASL index preceding an NP when referring to previously introduced loci, patterns with the strong definite article. IX is also shown to behave unlike other demonstratives in the language, which is additional evidence for the strong article definite analysis. Weak article definites are argued to be expressed by bare NPs, similar to the kind noted for numeral classifier languages (e.g. Jenks 2015).

3.1 Two types of definites cross-linguistically

Schwarz (2009; 2013) has observed two types of definite articles that are found in a host of unrelated languages: strong definite articles, which encode familiarity and anaphoricity, and weak definite articles, which encode uniqueness. Before diving into the properties of these two kinds of definite articles, let me first consider some typical uses of definiteness in natural language. The following are some examples from Hawkins (1978) modelled after Schwarz (2009):

- (7) Anaphoric use
*John bought a book and a magazine. **The book** was expensive.*
- (8) Immediate situation
***the table** (uttered in a room with exactly one table)*

- (9) Larger situation
the president (uttered in the US)
- (10) Bridging (Clark 1975)
- a. *John bought a book. The author is French.*
 - b. *John's hands were freezing as he was driving down the street.
The steering wheel was bitterly cold and he had forgotten his gloves.*

The examples in (7–10) indicate the various flavors in which definites can appear. (7) describes a use of definites that requires referring back to an already introduced linguistic referent in the discourse. As shown in (8) and (9), the definite NP does not need a linguistic antecedent; it can also refer to a salient entity in the environment. Similarly, (10) presents examples that can refer to a relation between the definite NP and its antecedent. (10a) illustrates a product-producer bridging relationship between the book and the author, while (10b) shows a part-whole relationship between the car described by the driving event and the steering wheel. The different types of definiteness here are relevant for the discussions to follow.

The definite expressions above appear in two forms across languages. They are divided along the lines of definite articles that denote familiarity or uniqueness (Schwarz 2009; 2013). They are coined the *strong article definite* and the *weak article definite* respectively. The following is an instance of an environment in which a weak article definite is licensed:⁵

- (11) Context: There is only one blackboard in the classroom and the professor says:
I won't be using the blackboard today.

The definite article *the* is felicitous in the example above even though a referent has not been previously introduced. The presence of a unique blackboard in the classroom is sufficient to make the use of the definite article possible. Part-whole bridging is another situation in which weak definite articles are licensed.

- (12) *The police stopped the car because the rear-view mirror was broken.*

In the example above, the rear-view mirror is a part of the car, and hence, the relationship between them is said to be part-whole. These cases also encode

⁵English lacks the strong and weak article definite distinction; I use the examples here for purely expository purposes.

uniqueness, and languages that show a distinction between the two types of definite articles employ a weak article definite here.

Strong definite articles, on the other hand, are based on familiarity – i.e. they are linked anaphorically to an antecedent. (13) illustrates definite articles in strong environments.

- (13) *I bought a book. **The book** was interesting.*

The definite article in (13) is used with the second occurrence of *book*. This usage is licensed by the presence of a contextually salient linguistic referent in the first sentence, which, in this instance, is an indefinite expression. Languages with both types of articles use a distinct strong article definite in these familiarity cases.

This distinction was first observed in German (Heinrichs 1954; Hartmann 1982; Schwarz 2009; i.a.), which evokes two overt forms of a definite marker to indicate the two types of definiteness.

- (14) German (Schwarz 2009: 52)

Der Kühlschrank war so groß, dass der Kürbis problemlos
the fridge was so big that the pumpkin without-a-problem
im / #in dem *Gemüsefach untergebracht werden konnte.*
in-the_{weak} / in the_{strong} crisper stowed be could
'The fridge was so big that the pumpkin could easily be stowed in the
crisper.'

- (15) German (Schwarz 2009: 53)

Das Theaterstück missfiel dem Kritiker so sehr, dass er in seiner
the play displeased the critic so much that he in his
Besprechung kein gutes Haar #am / **an dem** *Autor ließ.*
review no good hair on-the_{weak} / on the_{strong} author left
'The play displeased the critic so much that he tore the author to pieces in
his review.'

Although two forms of the definite marker are available, German obligatorily requires the contracted version in (14) and the uncontracted version in (15). These facts arise due to the type of bridging relations: (14) includes a part-whole relation, a weak article definite environment, while (15) includes a product-producer one, a strong article definite environment. With these German facts in place, I will now examine how the distinction plays out in other languages. Akan, a Niger-Congo language, shows a strikingly similar pattern of definiteness:

- (16) Akan (Arkoh & Matthewson 2013: 39)
Ámstrónj nyí nyímpá àà ó-dzí-ì kán tu-u kó-ḡ ḡsiràn
 Armstrong is person REL 3SG.SBJ-eat-PST first uproot-PST go-PST moon
dó.
 top
 ‘Armstrong was the first person to fly to the moon.’
- (17) Akan (Arkoh & Matthewson 2013: 52)
Ámá tó-ḡ ñsá fré-ḡ ñnòmàhwḡfḡ bí bá-à ñkyrḡkyírḡ
 Ama throw-PST hand call-PST birds.observer REF came-PST teaching.NOM
náásí. Mí-n-gyí pàpá nḡ ‘n-dzí kitsikitsí.
 POSS.under 1SG.subject-NEG-take man FAM NEG-eat small.RED
 ‘Ama invited a (certain) ornithologist to the seminar. I don’t trust the man
 in the least.’

Exactly like what was observed for German strong article definite, the Akan familiarity marker *nḡ* must occur in strong article definite environments. (16), in contrast, refers to a unique moon which does not license the familiarity marker, and unlike German, the weak article definite is expressed as a bare NP. Thai, a numeral classifier language, also does not license a definite marker in weak article definite cases, and a bare NP is used instead. The Thai example below patterns exactly like the Akan case in (16) that encodes uniqueness.

- (18) Thai (Jenks 2015: 7)
rót khan nán thùuk tamrùat sàkàt phrḡ? māj.dāj tìt satikəə
 car CLF that ADV.PST police intercept because NEG attach sticker
wāj thīi thābian (#bāj nán)
 keep at license CLF that
 ‘That car was stopped by police because there was no sticker on the
 license.’

The part-whole relation between the sticker and the car results in a weak article definite environment, where a bare NP is used. However, anaphoricity licenses the obligatory presence of a classifier, which is argued to be the strong definite article in Thai (Jenks 2015).

- (19) Thai (Jenks 2015: 7)
ʔəʔl khít wāa klən bòt nán prḡ? māk mḡe-wāa khāv cà māj
 Paul thinks COMP poem CLF that melodious very although 3 IRR NEG

chōp náktēēklōn #(khon nán)
 like poet CLF that
 ‘Paul thinks that poem is beautiful, though he doesn’t really like the poet.’

Now that I have discussed the patterns to be expected of strong and weak definite articles across languages, I can examine the occurrences of the ASL IX in exactly these circumstances.⁶ In the following section, I apply the above tests to IX in ASL and show that it indeed behaves like a strong definite article.

3.2 IX as a strong definite article

Previous work (Koulidobrova & Lillo-Martin 2016) has claimed that IX is a demonstrative as it apparently fails to occur felicitously in definite environments and displays behavior typically expected of demonstratives. In this section, I address the first part of the argument and show that IX is obligatorily used in strong definite environments when referring to loci already established in the discourse, thus indicating that IX can play the role of a strong definite article.

It has been claimed that IX cannot occur in certain definite environments, like in (6) repeated below as (20):

- (20) TODAY SUNDAY. DO-DO. GO CHURCH, SEE PRIEST. (#IX_a) PRIEST_a NICE.
 ‘Today is Sunday. What to do? I’ll go to church, see the priest. The priest is nice.’ (adapted from Koulidobrova & Lillo-Martin 2016: 234)

The example above suggests that IX with an NP cannot have a bare NP as its antecedent, but it is not informative regarding the overall status of IX or its interpretation in the given utterance. As stated earlier, IX can be used as a locus to establish referents in signing space. Once a locus for IX has been introduced, a different pattern emerges. This is illustrated in (21) below:

- (21) JOHN BUY IX_a MAGAZINE_a, IX_b BOOK_b. IX_b BOOK_b EXPENSIVE.
 ‘John bought a magazine and a book. The book was expensive.’

The occurrence of IX in (21) is surprising if it were a demonstrative. For instance, English does not permit demonstratives in these anaphoric cases.

⁶De Sá et al. (2012) find a morphosyntactic distinction between strong and weak definites in Brazilian Sign Language (Libras). However, this distinction follows Carlson & Sussman’s (2005) line of work where weak definites in instances such as *John went to the store* do not have a uniqueness requirement. I will not discuss this work any further, but the reader is referred to Carlson & Sussman (2005) and Carlson et al. (2006) for more detail. The relevant distinction in the definiteness domain here is that based on familiarity and uniqueness between what Schwarz (2009) calls the *strong article definite* and *weak article definite*.

(22) *John bought a book and a magazine. The/#That book was expensive.*⁷

In addition to these examples where IX is possible in environments that only permit definite articles and not demonstratives, IX also occurs in instances of product-producer bridging.

(23) JOHN BUY IX_a BOOK_a. # (IX_a) AUTHOR_a SELF FRENCH.
 'John bought a book. The author is French.'⁸

The examples in (21) and (23) are parallel to the German, Akan, and Thai cases seen earlier. Anaphoricity licenses the occurrences of IX, which is exactly true for the strong definite article. Moreover, it is non-trivial for an IX as a demonstrative approach that the index is possible above. Although definite articles are possible in the environment in (23), demonstratives are not, as seen from English in (24).

(24) *John bought a book. The/#That author is French.*

This section served to illustrate three things. First, bare NPs cannot serve as antecedents for IX.⁹ Second, IX is possible in definite environments when referring back to previously established loci and patterns with the strong definite article. And third, IX can appear in environments where demonstratives are infelicitous. The following section elaborates on this last point.

3.3 IX versus demonstratives

I have provided evidence for IX as a strong definite article, but in this section, I also present arguments for IX behaving distinctly from demonstratives. ASL is already known to have a demonstrative THAT in the language, which is signed with

⁷This sentence becomes more acceptable if *that* is pronounced with some exclamation. This gives the utterance an emphatic meaning. On the other hand, this emotive reading is not as available if the predicate was relatively more mundane; for instance, *John bought a magazine and a book. That book was red.* is much worse than a definite article use even with an emphasis on *that*.

⁸The possessive in ASL has a different form, the (flat) B handshape. The example here does not indicate a possessive like *book's author* since the index finger with the 1 handshape is used instead, without the NP *book*.

⁹A reviewer asks whether it is too strong a claim to argue that IX+NP cannot refer back to bare NPs. The consultants whose judgments are reported here did not allow it. However, it is possible that some variation can be found in this area. For instance, Šereikaitė (2019) (in this volume) finds variation in the product-producer bridging cases in Lithuanian.

a Y handshape.¹⁰ Therefore, an easy test for the IX as a demonstrative hypothesis is to place IX in the same environment as THAT and observe their behavior. This sign was not examined by Koulidobrova & Lillo-Martin (2016) in their investigation of IX.

Although demonstratives and definite articles both contain presuppositions of familiarity and uniqueness, demonstratives carry with them an accompanying demonstration (Roberts 2002). It is a known property of demonstratives that they enforce a contrastive reading. This property renders sentences like the following infelicitous with *that*:

(25) *A car drove by. The/#That horn was honking loudly.* (Wolter 2006: 70)

(26) *I met a doctor and a banker. The/#That banker was full of himself.*

The sentences above are infelicitous with the demonstrative due to the lack of a contrastive reading. On the other hand, I have already shown that a sentence like (26) in ASL permits IX, which would be surprising if IX is a demonstrative that requires a contrastive interpretation. The example in (21) is repeated below in (27).

(27) JOHN BUY IX_a MAGAZINE_a, IX_b BOOK_b. IX_b BOOK_b EXPENSIVE.
'John bought a magazine and a book. The book was expensive.'

The counterpart of the sentence with the demonstrative THAT, however, is infelicitous.

(28) JOHN BUY IX_a MAGAZINE_a, IX_b BOOK_b. #THAT_b BOOK_b EXPENSIVE.
'John bought a magazine and a book. The book was expensive.'

Even when THAT is signed aligned with the locus associated with the book, the demonstrative in this anaphoric situation is unavailable. Another situation where demonstratives and definite articles can be distinguished is when referring to a contextually salient referent out of the blue. Firstly, I note that it is not essential that demonstratives require physical pointing to the referent, as it is neither a sufficient nor a necessary condition.

(29) Context: Policeman, pointing in the direction of a man running through a crowd:
Stop that man! (Roberts 2002: 121)

¹⁰The sign THAT is also used as a relative pronoun, but other than bearing the same phonological realization as the demonstrative, it is unclear that the two usages show any syntactic or semantic overlap.

The example above from Roberts (2002) describes a situation in which a policeman is chasing a man through a crowd of several people. It is not obvious who he is pointing to, but the context makes the referent clear. A deictic gesture is also unnecessary in making out the discourse referent. Roberts describes a situation in which two friends are sitting in a coffee shop when a man enters and begins to noisily harass the employee behind the counter. In this case, without pointing and drawing attention to herself, one friend can say to the other:

(30) *That guy is really obnoxious.* (Roberts 2002: 121)

Such an example can be tested in ASL as well. Demonstratives are expected to be possible in this environment, but definite articles are predicted to be infelicitous.

(31) [out of the blue] (#IX-neu) MAN ANNOYING.
'That man's annoying.'

(32) [out of the blue] THAT-neu MAN ANNOYING.
'That man's annoying.'

Example (31) shows that IX pointing to a neutral location¹¹ cannot be used to refer to the contextually salient individual. I show this example with a neutral point in order to avoid any confound of assigning an arbitrary locus to an individual present in the environment; under normal circumstances, one would use a deictic locus in these cases. Even with a neutral point before MAN, the utterance is infelicitous. However, the same statement becomes acceptable with THAT or even as a bare NP. The use of the bare NP in (31) becomes relevant in the discussion on weak definite articles; for the present argument, I am only concerned with the contrast between (31) and (32). The situation described here is perfectly acceptable with the demonstrative THAT. It is evident that the two signs THAT and IX pattern differently, and furthermore, THAT in ASL behaves just like *that* in English.

The instances of ASL THAT, IX, and the English *that* presented in this section force me to conclude that IX does not have much in common with the English *that*, and moreover, it does not align with the theory of demonstratives adopted here. In contrast, I find that THAT in ASL and *that* in English behave alike in the situations presented in this section.

¹¹I do not make any claims in regards to IX in neutral position and its featural specifications. I am simply pointing out here that IX-neu MAN is prohibited in this case due to the presence of a salient individual.

Up to this point, I have presented arguments for a strong definite article in ASL. Its counterpart, the weak definite article, also exists in the language. The next section argues that bare NPs can play the role of weak article definites.

3.4 Bare NPs as weak article definites

In the previous two sections, I have provided evidence that the ASL index *ix* behaves like the strong definite article as opposed to a demonstrative. Here, I discuss evidence for the presence of weak article definites in the language.

If one recalls the examples from German, Thai, and Akan, weak definite articles can appear across languages in two varieties: overtly or as a bare NP. I have already argued that *ix* in ASL is a strong definite article, and by examining bare NPs, I find that they behave like weak definite articles similar to those in Thai and Akan. (33) and (34) illustrate this.

- (33) FRANCE (#*ix*_a) CAPITAL_a WHAT
'What is the capital of France?' (Koulidobrova & Lillo-Martin 2016: 234)
- (34) TODAY SUNDAY. DO-DO? GO CHURCH, SEE (#*ix*_a) PRIEST_a
'Today is Sunday. What to do? I'll go to church, see the priest.'
(Koulidobrova & Lillo-Martin 2016: 234)

The sentences in (4) and (5) from Koulidobrova & Lillo-Martin (2016) are repeated above in (33) and (34) respectively. These examples were aimed at indicating the incompatibility of *ix* with unique NPs. In (33), *ix* is impossible even though there is only one capital of the country. Similarly, in (34), using *ix* with the NP *PRIEST* is unacceptable even when there is a unique priest at the church. The infelicity of these cases is expected if weak article definites have to be expressed by bare NPs.¹²

4 Reanalyzing *ix*

Now that I have established *ix* as a strong article definite when it refers to previously established loci and bare NPs as weak definite articles, I can proceed to lay out the precise nature of definiteness in ASL in relation to *ix*, loci, and bare

¹²In §5, I present examples of where uniqueness restrictions on *ix* are not as strong. These are cases with two unique referents in the discourse. Such examples warrant further investigation, but they do not detract from the argument here, which indicates that under general circumstances, unique referents are unable to be associated with a locus. Moreover, the reason behind the prohibition of *ix* in these cases is still not an artifact of *ix* as a demonstrative.

NPs.¹³ The present analysis also leads to the question of why bare NPs cannot serve as antecedents to ASL strong definite articles. I address that question in this section.

The key difference between the weak and strong definite articles manifests itself in the presence or absence of an extra individual argument and identity relation. This difference is encoded in the definitions of the weak and strong definite articles below, as formulated by Schwarz (2009).

(35) Weak definite article

$$\lambda s_r \lambda P_{\langle e, st \rangle} : \exists ! x P(x)(s_r) . \iota x . P(x)(s_r) \text{ (Schwarz 2009: 148)}$$

(36) Strong definite article

a. $\lambda s_r \lambda P . \lambda y : \exists ! x (P(x)(s_r) \ \& \ x = y) . \iota x [P(x)(s_r) \ \& \ x = y]$

b. $[_{DP} 1 \text{ [[the } s_r \text{] NP]]}$

c. $[[36b]]^g = \iota x . NP(x)(s_r) \ \& \ x = g(1) \text{ (Schwarz 2009: 260)}$

In the formulations above, s_r represents resource situation pronouns in DPs, which is essentially a variant of a standard indexed variable (Schwarz 2009: 95). The difference between the two types of articles is that the weak article definite does not contain an individual argument. The strong definite article, on the other hand, is made up of the weak definite article, which expresses situational uniqueness, and has a phonologically null pronominal element – the anaphoric index argument – built into it (Schwarz 2009: 258). I adopt the above representations of the weak and strong definite articles for IX+NPs and bare NPs, as their properties align with the aforementioned distinctions. As per the discussion, weak article definites do not generally introduce an index, but under my proposal, I will show that both bare NPs and IX+NPs can introduce indices. The data presented in this paper do not allow to make a claim regarding the introduction of indices for weak article definites more generally, although it is possible that they exhibit different behaviors when the conditions for the weak article definite are met.

¹³Some sign languages have been noted to express definiteness via non-manual markers. For example, a wrinkled nose co-articulated with an NP in Russian Sign Language and in the Sign Language of the Netherlands signals a known discourse referent (Kimmelman 2015). The use of non-manual markers to convey definiteness has yet to be observed in ASL. However, future work would benefit from examining the potential role of non-manual markers or the location of the referent in signing space. The latter has been noted to play a role in Catalan Sign Language (Barberà 2014). Thanks are due to an anonymous reviewer for bringing cross-linguistic work on definiteness and non-manual marking to my attention.

Bare NPs in ASL, moreover, are ambiguous between definites and indefinites. Similar to bare NPs, IX+NPs in ASL double as indefinite and definite expressions. These facts lead us back to wonder why indefinite bare NPs cannot serve as antecedents for the strong definite article. In order to answer this question, I first show in the consequent sections that both bare NPs and IX+NP have a bona fide indefinite reading. Then I discuss the properties of the strong article definite that require an antecedent which has been introduced through a locus. Bare NPs cannot serve as antecedents to IX+NPs precisely because they are not specified at a locus. I propose that bare NPs are underspecified for a locus feature, which creates a discordance between the two nominal types in the discourse due to the types of indices they introduce. §4.2 provides evidence and expands on this idea. Support for my argument that IX is composed of features comes from work showing that features on loci can be uninterpreted under focus (Kuhn 2015), which I discuss in §4.3. In order to account for all the patterns I inspect in this paper, I follow Schlenker (2016) in adopting a featural variable analysis of loci.

4.1 ASL indefinites

I provide evidence below for both bare NPs and IX+NPs as also having true indefinite readings. ASL is a determinerless language, and it has been argued that such languages lack a true indefinite interpretation (Dayal 2004). Hindi has been shown to fit this description, however, I illustrate that ASL and Hindi diverge in this respect.¹⁴

Bare NPs in ASL are ambiguous between definites and indefinites. I have already shown definite readings of ASL bare NPs, and I can apply standard diagnostics to test their behavior as indefinites. In this section, I take a look at narrow scope indefinite readings of bare NPs in subject position to illustrate that bare NPs can have a true indefinite reading. Moreover, IX+NPs can also have such an interpretation, a fact illustrated through their use in donkey sentences.

Hindi, a language without overt determiners, has been argued by Dayal (2004) as having bare NPs that lack a pure indefinite reading. Consider the sentence below:

- (37) Hindi (adapted from Dayal 2004: 406)
Charon taraf baccha khel rahaa thaa.
four ways child play PROG.SG be.SG.PST
'A (different) child was playing everywhere.'

¹⁴If true, this claim would be in contrast to Dayal (2004), who argues that bare NP languages without determiners do not have a pure indefinite reading.

Baccha ‘child’ in the sentence in (37) above cannot have the interpretation where a different child is playing everywhere; the only reading available is that of a single child. This fact does not hold in ASL. The following example illustrates that ASL and Hindi must be analyzed differently, as bare NPs in subject position in the language can be interpreted with a narrow scope indefinite reading.

- (38) CHILD PLAY EVERYWHERE.
 ‘Same child/a different child was playing everywhere.’

The example in (38) can either have the reading where only one child is playing everywhere, or the reading where different children are present. If a narrow scope indefinite reading were impossible, then only the former interpretation would be expected. ASL bare NPs have passed this test for indefinite readings. The example in (38) is similar to English (39), a language with overt determiners, in this respect.

- (39) *A child was playing everywhere.*

As the English example illustrates, a narrow scope indefinite reading is possible with *a child*, where both interpretations of a single child or different children are available. ASL and English do not appear to differ in this regard, and it seems that bare NPs in ASL pattern with English indefinites.

Another test of a true indefinite is its use in donkey sentences. It is known from decades of research on the topic (Geach 1962; Lewis 2002[1975], i.a.) that indefinites allow for donkey anaphora. English indefinites show this property.

- (40) *Every time I meet a student, me and him get into a fight.*

In (40), the encounters can refer to a different student each time, which is expected for true indefinites. The facts for IX+NPs in ASL are the same as in English, again indicating that they are ambiguous between definites and indefinites. In the example below, a locus for STUDENT has been set up and the pronominal forms in the utterance make use of reference to both, the space of the person uttering the sentence, and the locus for STUDENT.

- (41) EVERY-TIME I MEET IX_a STUDENT_a, ME-IX_a FIGHT.
 ‘Every time I meet a student, me and him get into a fight.’

Like the English example, the sentence in (41) can also refer to different encounters with students, which illustrates that donkey readings are possible with IX+NPs. Given the facts of bare NPs and IX+NPs in this section, I conclude that both bare NPs and IX+NPs have a true indefinite reading. I can now build on this fact and encapsulate it within my proposal.

4.2 The basic proposal

In this section, I follow the file card semantics of Heim (2002[1983]) to capture the patterns in the language observed earlier. Under this theory, information within an utterance can be metaphorically viewed as being stored in files. Each logical form of a sentence is also assigned a file change potential, which is a function from the file that obtains prior to an utterance to the file obtained after the utterance. The truth of the file is determined by the sequence of individuals that satisfy the file. This sequence is a function from a subset of natural numbers N into the domain of all individuals, for instance, for the pair of members a_1 and a_2 , $\langle a_1, a_2 \rangle$ is the function which maps 1 to a_1 and 2 to a_2 (Heim 2002[1983]: 228).

Definites and indefinites in natural language, under this system, can be understood through the Novelty/Familiarity Condition, as given in (42), where definites are familiar referents and indefinites are novel.

(42) The Novelty/Familiarity Condition

“Let F be a file, p an atomic proposition. Then p is appropriate with respect to F only if, for every noun phrase NP_i with index i that p contains:

If NP_i is definite, then $i \in \text{Dom}(F)$, and

If NP_i is indefinite, then $i \notin \text{Dom}(F)$ ” Heim (2002[1983]: 233)

The Novelty/Familiarity Condition simply states that definites are familiar referents whose index is already in the domain of the file F , whereas indefinites are novel referents whose index is not in the domain of the file. Taking this basic notion of definites and indefinites into account, I can now proceed to analyze the ASL patterns discussed throughout. The basic proposal is this: ix introduces a locus, which can be viewed as the introduction of a locus feature on the NP to follow. Bare NPs lack such a feature as they are not signed at a locus, i.e., a particular point in signing space. Only bare NPs can refer back to bare NPs, while only NPs specified for a locus feature can refer back to loci because bare NPs are unspecified for them. What the specification of a locus feature in essence translates to is that bare NPs and ix +NPs introduce different types of indices: one specified for loci and the other which is underspecified for a locus feature. These distinct indices would force an ix +NP to be interpreted as a new referent even if there is a bare NP that could potentially serve as an antecedent.¹⁵

¹⁵The data could potentially be accounted for by proposing that bare NPs do not introduce an index at all, although then one would have to propose an additional mechanism by which bare NPs can refer to each other as in (43). More data along these lines may allow to distinguish between the two alternatives.

Let me illustrate this idea with some examples:¹⁶

- (43) a) JOHN BOUGHT BOOK. b) BOOK INTERESTING.
 ‘John bought a book. The book was interesting.’
- (44) a) IX_a JOHN_a BOUGHT IX_b BOOK_b. b) IX_b BOOK_b INTERESTING.
 ‘John bought a book. The book was interesting.’
- (45) a) JOHN BOUGHT BOOK. b) #IX_b BOOK_b INTERESTING.
 ‘John bought a book_i. #A book_i was interesting.’

I take each of the above examples in turn and explain how they are interpreted in accordance with my analysis. In (43), neither of the bare NPs BOOK is specified for a locus feature. Therefore, the second instance of BOOK does not introduce an indefinite and it is interpreted as familiar. In (44), the first instance of BOOK with a locus feature introduces an indefinite index. The second instance of book, however, is signed at the same locus, referring back to the same index. Instead, BOOK in (44b) is necessarily interpreted as familiar. Finally, the example in (45) is key in understanding the proposed analysis. BOOK in (45b) is specified for a locus feature, while the bare NP BOOK is not. In that case, the second instance of book is interpreted as an indefinite, and the sentence is infelicitous under the reading that the same book is under discussion.¹⁷

Earlier in the paper, I showed that bare NPs and IX+NPs are ambiguous between definite and indefinite readings. Therefore, as per the Novelty/Familiarity Condition, both bare NPs and IX+NPs can either introduce an indefinite or refer to a familiar expression. This rule for both bare NPs and IX+NPs, given a file F, the domain of F Dom(F), and the set of sequences that satisfy F Sat(F), and an index i, is summarized in (46):

- (46) If $i \in \text{Dom}(F)$, then $\text{Sat}(F') = \text{Sat}(F + b_i \in \text{Ext}(\text{“NP”}))$;
 else, if i is $\notin \text{Dom}(F)$, then $\text{Dom}(F') = \text{Dom}(F) \cup \{i\}$.

¹⁶I leave out the loci for JOHN in (43) and (45) for expository purposes. This does not affect the readings of the sentences in any relevant way.

¹⁷The sentence is perfectly acceptable with the reading that there is a novel book that is interesting – i.e. when the two books do not corefer.

(i) JOHN BUY BOOK. IX_a BOOK_a INTERESTING.
 ‘John bought a book_i. A book_j is interesting.’

The extent to which the above sentence is infelicitous in ASL may be compared to the English translation provided.

The analysis I have proposed here follows from the building blocks of Heim's system: every NP in logical form carries an index, and the only distinction between the two types of nominal expressions in ASL is their association with a locus. Let me now show how the mechanisms of this analysis emerge under the workings of file card semantics. There are two basic requirements for indefinite expressions as stated in (47): i) the index must not be in the domain of the file ($\text{Dom}(F)$), and ii) the satisfaction set of the file ($\text{Sat}(F)$) plus an atomic formula p must not be empty.

$$(47) \quad i \notin \text{Dom}(F) \ \& \ \text{Sat}(F+p) \neq \emptyset$$

In ASL, when $ix+NP$ is introduced, a new file card is obtained if the index is not in $\text{Dom}(F)$.

When introducing an indefinite, the sequences in $\text{Sat}(F+p)$ have to be longer than those in $\text{Sat}(F)$. With these principles in place, I can work through the examples in (43–45). Below, I provide the interpretation for (43).

$$(48) \quad \text{Sat}(F_0+(43a)) = \text{Sat}((F_0+[\text{NP}_1 \text{ John}] + [\text{NP}_2 \text{ a book}] + [e_1 \text{ bought } e_2])) \\ = \{\langle b_1, b_2 \rangle: b_1 \in \text{Ext}(\text{"John"}), b_2 \in \text{Ext}(\text{"book"}) \text{ and } \langle b_1, b_2 \rangle \in \text{Ext}(\text{"bought"})\}$$

Here, I have thus far simply introduced extensions of sequences that were not in $\text{Dom}(F)$, but whose sub-sequences satisfy F and p , by allowing for cases where $F+p$ has a larger domain than F . I have not yet had to deal with cases with a familiar referent. Example (43b) is such a case, and I account for it as shown in (49):

$$(49) \quad \text{Dom}(F_1) = \{1,2\} \\ \text{Sat}(F_2) = \{\langle b_1, b_2 \rangle: b_2 \in \text{Sat}(F_1) \text{ and } b_2 \in \text{Ext}(\text{"interesting"})\}$$

We already have the two file cards for 1 and 2 at this point. When (43b) is uttered, the file cards are updated accordingly. No new index is introduced as both instances of *BOOK* in this case are bare NPs unspecified for a locus feature, and *BOOK* in (43b) is understood as a familiar referent. Both instances of *BOOK* introduce the same index; thus, (43) can be summarized as (50):

$$(50) \quad \text{John}(x) \ \& \ \text{book}(y) \ \& \ \text{bought}(x,y) \ \& \ \text{interesting}(y)$$

The examples in (44) are interpreted in the same way as (43), even though both instances of *BOOK* here are specified for a locus feature. The interpretation of (44a) is shown in (51):

$$\begin{aligned}
 (51) \quad \text{Sat}(F_0+(44a)) &= \\
 &= \text{Sat}((F_0+[\text{NP}_1 \text{ John}] + [\text{NP}_2 \text{ a book}] + [e_1 \text{ bought } e_2]) \\
 &= \{\langle b_1, b_2 \rangle: b_1 \in \text{Ext}(\text{“John”}), b_2 \in \text{Ext}(\text{“book”}) \text{ and } \langle b_1, b_2 \rangle \in \text{Ext}(\text{“bought”})\}
 \end{aligned}$$

As seen above, the interpretation for (44a) is not different from (43a). Similarly, a novel index is not introduced when the second instance of BOOK is uttered in (44b), as it is also specified for the same locus feature.

$$\begin{aligned}
 (52) \quad \text{Dom}(F_1) &= \{1,2\} \\
 \text{Sat}(F_2) &= \{\langle b_1, b_2 \rangle: b_2 \in \text{Sat}(F_1) \text{ and } b_2 \in \text{Ext}(\text{“interesting”})\}
 \end{aligned}$$

Therefore, in sum, for (44) we also get:

$$(53) \quad \text{John}(x) \ \& \ \text{book}(y) \ \& \ \text{bought}(x,y) \ \& \ \text{interesting}(y)$$

The interpretation for (43) and (44) does not work out differently as the second instance of BOOK in both cases is familiar, as both NPs for BOOK are either bare NPs or IX+NPs. A different result is obtained when the first NP for BOOK is a bare NP and the second NP has a locus feature.

For (45), part (a), which contains novel expressions, is the same as the interpretations for (43) and (44) as no decision about the familiarity or novelty of the referent has to be made.

$$\begin{aligned}
 (54) \quad \text{Sat}(F_0+(45a)) &= \\
 &= \text{Sat}((F_0+[\text{NP}_1 \text{ John}] + [\text{NP}_2 \text{ a book}] + [e_1 \text{ bought } e_2]) \\
 &= \{\langle b_1, b_2 \rangle: b_1 \in \text{Ext}(\text{“John”}), b_2 \in \text{Ext}(\text{“book”}) \text{ and } \langle b_1, b_2 \rangle \in \text{Ext}(\text{“bought”})\}
 \end{aligned}$$

(45b), however, is different. The first instance of BOOK in this case was a bare NP, one not specified for a locus feature. On the other hand, BOOK in (45b) is specified for a locus feature. Since the index for the bare NP BOOK was underspecified for a locus feature, it cannot be the same one as IX+NP BOOK, and hence, a distinct index for the second instance is introduced.

$$\begin{aligned}
 (55) \quad \text{Dom}(F_1) &= \{1,2,3\} \\
 \text{Sat}(F_1+(45b)) &= \\
 &= \text{Sat}((F_1 + [\text{NP}_3 \text{ a book}]) + [e_3 \text{ interesting}]) \\
 &= \{\langle b_1, b_2, b_3 \rangle: b_3 \in \text{Ext}(\text{“book”}) \text{ and } b_3 \in \text{Ext}(\text{“interesting”})\}
 \end{aligned}$$

Thus, for (45), the interpretation in (56) is obtained, which is unlike (43) and (44):

(56) John(x) & book(y) & bought(x,y) & book(z) & interesting(z)

It can be seen above that the second instance of BOOK is interpreted as an indefinite, which renders the pair of sentences infelicitous under the reading where the two books refer to the same entity. The BOOK in (b) cannot refer to the one in (a) as (45a) is unspecified for a locus feature.

Now that I have shown how the analysis plays out, I need to explicate the relationship between loci, bare NPs and indices. I have already stated that both ix+NPs and bare NPs introduce indices, but what kind of indices does a locus and a bare NP introduce? From the analysis laid out so far, I propose that bare NPs are underspecified for a locus as the language allows for a locus feature to be associated with NPs. This locus feature is specified according to the index they take. The following section elaborates further on the final point, but for now I can formalize the two types of indices as those underspecified for a locus feature, and those specified for it. Bare NPs take the former kind, which can be denoted using Greek letters, α , β , etc. ix+NPs take indices of the type a, b, c, etc., the kind which is specified for a locus feature. Thus, for the sentences in (43–45), a particular kind of index is obtained depending on whether the NP is associated with a locus or is a bare NP.¹⁸ With this updated proposal, let me revisit the example in (43), and illustrate its updated representation under this system. The interpretation for (43a) is provided in (57):

(57) $\text{Sat}(F_0+(43a)) =$
 $= \text{Sat}(F_0 + [_{NP_\alpha} \text{John}] + [_{NP_\beta} \text{a book}] + [e_\alpha \text{bought } e_\beta])$
 $= \{ \langle b_\alpha, b_\beta \rangle : b_\alpha \in \text{Ext}(\text{“John”}), b_\beta \in \text{Ext}(\text{“book”}) \text{ and } \langle b_\alpha, b_\beta \rangle \in \text{Ext}(\text{“bought”}) \}$

Notice that in (57) the numerical indices are now represented by α and β to illustrate the underspecification of the locus feature. The type of indices we are dealing with is now transparent. Since (43b) also makes use of bare NPs, no new file card is introduced and the utterance is interpreted as familiar, as is shown in (58).

¹⁸The underspecification of indices for a feature is not unique to ASL. Persian pseudo-incorporated nominals are argued to display a similar property (Krifka & Modarresi 2016), where the discourse referents introduced by these NPs are underspecified for number. Covert pronouns are also said to lack number features, while overt ones are marked for number. Krifka & Modarresi show that overt pronouns require number marked NPs, whereas covert pronouns do not. This analysis is parallel to what I propose here for ASL NPs with a locus feature.

$$(58) \text{ Dom}(F_1) = \alpha, \beta$$

$$\text{Sat}(F_2) = \{\langle b_\alpha, b_\beta \rangle: b_\beta \in \text{Sat}(F_1) \text{ and } b_\beta \in \text{Ext} (\text{“interesting”})\}$$

Thus, for (43) we get (59):

$$(59) \text{ John}(x) \ \& \ \text{book}(y) \ \& \ \text{bought}(x,y) \ \& \ \text{interesting}(y)$$

Now that I have presented bare NPs introducing indices of the type α and β , I can account for (44) in a similar manner by evoking indices of the type a and b , which are specified for a locus feature. The interpretation for (44a) is provided in (60).

$$(60) \text{ Sat}(F_0+(44)) =$$

$$= \text{Sat}(F_0 + [\text{NP}_\alpha \text{ John}] + [\text{NP}_b \text{ a book}] + [e_a \text{ bought } e_b])$$

$$= \{\langle b_a, b_b \rangle: b_1 \in \text{Ext} (\text{“John”}), b_b \in \text{Ext} (\text{“book”}) \text{ and } \langle b_a, b_b \rangle \in \text{Ext} (\text{“bought”})\}$$

Example (44) is understood in the same way as example (43), except with the use of NPs that are associated with a locus. BOOK in (44b) is also interpreted as a definite expression.

$$(61) \text{ Dom}(F_1) = \{a, b\}$$

$$\text{Sat}(F_2) = \{\langle b_a, b_b \rangle: b_b \in \text{Sat}(F_1) \text{ and } b_b \in \text{Ext} (\text{“interesting”})\}$$

In sum, for (44) we get (62):

$$(62) \text{ John}(x) \ \& \ \text{book}(y) \ \& \ \text{bought}(x,y) \ \& \ \text{interesting}(y)$$

It now becomes apparent an interaction between the two systems in (45), which ultimately does not result in the desired interpretation. The bare NPs in (45a) introduce an index unspecified for loci, but $\text{ix}+\text{NP}$ in (45b) introduces an index with a locus feature. First, the interpretation of (45a), which contains novel expressions, simply introduces indefinites like in (43a).

$$(63) \text{ Sat}(F_0+(45a)) =$$

$$= \text{Sat}(F_0 + [\text{NP}_\alpha \text{ John}] + [\text{NP}_\beta \text{ a book}] + [e_\alpha \text{ bought } e_\beta])$$

$$= \{\langle b_\alpha, b_\beta \rangle: b_\alpha \in \text{Ext} (\text{“John”}), b_\beta \in \text{Ext} (\text{“book”}) \text{ and } \langle b_\alpha, b_\beta \rangle \in \text{Ext} (\text{“bought”})\}$$

(45b), in contrast, is different. Here familiar reading of BOOK is not obtained as this NP is associated with a locus. It introduces an index X , which is not an index of a type underspecified for a locus feature. Thus, it introduces a new file card and the second instance of BOOK is understood as an indefinite expression.

- (64) $\text{Dom}(F_1) = \{\alpha, \beta, a\}$
 $\text{Sat}(F_1 + (45b)) =$
 $= \text{Sat}((F_1 + [\text{NP}_a \text{ a book}]) + [e_a \text{ interesting}])$
 $= \{\langle b_\alpha, b_\beta, b_a \rangle : b_\alpha \in \text{Ext}(\text{“book”}) \text{ and } b_a \in \text{Ext}(\text{“interesting”})\}$

As a result, the interpretation for (45) is the following:

- (65) $\text{John}(x) \ \& \ \text{book}(y) \ \& \ \text{bought}(x,y) \ \& \ \text{book}(z) \ \& \ \text{interesting}(z)$

The analysis presented above illustrates two main points: one, NPs in ASL can be either specified or underspecified for a locus feature; and two, an NP specified for a locus feature cannot refer to an NP that is underspecified for them. Given this system, the infelicity of a definite reading with IX can now be predicted in expressions like (45b).

Finally, my proposal allows to explain some examples presented in the literature regarding IX without an NP. Koulidobrova & Lillo-Martin (2016) also argue that IX without an NP is not a pronoun, against previous claims in the literature (Kuhn 2015). This proposal now allows to decide between the two sides of the debate, as I can lay out the arguments against IX as a pronoun, and show that they do not hold under the current analysis. I have already established that IX+NPs and bare NPs introduce two flavors of indices that do not interact with each other. An IX+NP will be interpreted as an indefinite expression unless it has an IX+NP antecedent with the same specified locus feature. The argument against IX as pronoun is based on evidence like the following:

- (66) PETER THINK IX_a / IX-neu SMART.
 ‘Peter_i thinks he_{i/j} is smart.’ (Koulidobrova & Lillo-Martin 2016: 241)
- (67) a. WHEN ONE aCL STUDENT COME PARTY, aIX HAVE-FUN.
 ‘When a student_i comes to the party, he_{i/j} has fun.’
- b. WHEN ONE STUDENT_i COME PARTY, aIX/neu-[CL IX] HAVE-FUN.
 ‘When a student comes to the party, he_{i/j} has fun.’ (Schlenker 2010: 18,
 as cited by Koulidobrova & Lillo-Martin 2016: 242)

The line of reasoning here is that IX cannot refer back to the bare NP as in (66), which would be odd given the pronominal nature of IX. The mystery absolves itself under the present approach, wherein the bare NP and IX+NP introduce indices of different types. The example in (66) shows that the first instance of IX

cannot refer back to Peter, but to another individual, which is completely predictable if it is assumed that IX, similar to IX+NPs, cannot refer back to bare NPs as they are specified for a locus feature.

The system of NPs being specified or unspecified for a locus feature allows to view the function of loci differently. They are not merely the realization of indices in the language – they also allow to keep track of discourse referents. Specifying an NP for a locus feature is, then, simply more efficient than using bare NPs. Certainly, I do not wish to make a strong functional claim here in which ease of processing drives the use of loci. I am only stating that a signed language has the option of using loci, and ASL makes use of this option.

Throughout this section, I have underlyingly assumed that loci are features, a fact that has been proposed previously for ASL (Kuhn 2015; Schlenker 2016). Since this assumption is non-trivial, I discuss it further in detail in the following section.

4.3 Loci as featural variables

The notion that IX consists of a locus feature and bare NPs are underspecified for them integrates previous proposals, namely that of featural variables (Schlenker 2016). A featural variable analysis of loci accounts for the ability of loci to be reused and shared, and for features to be uninterpreted under *only*, a fact that has been noted for the language (Kuhn 2015). Below, I discuss the arguments for a featural variable analysis, and then show how my analysis fits in with this approach to ASL.

4.3.1 Arguments for loci as features

The motivation for a featural variable approach consists of two parts: arguments for loci as morpho-syntactic features and arguments for loci as variables. I discuss both aspects of the analysis so that I can examine how this proposal relates to the other facts of the language. I start with arguments for loci as features in this section.

There are several crucial facts that illustrate the need for ASL loci to be analyzed in part as morpho-syntactic features. Loci can be reused, shared, and the features of the NP associated with the locus can be uninterpreted under *only*. I illustrate each of the above facts below in turn.

Prima facie, loci can be reused since loci do not remain associated with a particular entity for longer than a conversation. Moreover, loci can be reused even within the same conversation.

- (68) KINDERGARTEN CLASS STUDENTS IX-arc_{ab} STUDENTS PRACTICE DIFFERENT COMPLIMENTS. FIRST, IX_a ALAN_a TELL IX_b BILL_b IX_a ADMIRES IX_b. SECOND, IX_a CHARLES_a TELL IX_b DANIELLE IX_a LIKES POSS_b STYLE. THIRD, IX_a EVE_a TELL IX_b FRANCIS_b IX_a THINK IX_b HANDSOME.
 ‘In a kindergarten class, the students were practicing different compliments. First, Alan_i told Bill_j that he_i admires him_j. Second, Charles told Danielle that he likes her style. Third, Eve told Francis that she thinks he’s handsome.’ (adapted from Kuhn 2015: 462)

Example (68) demonstrates how the loci a and b can be reused for every pair referenced in the sentences. Therefore, there is no one-to-one correspondence between loci and discourse referents throughout single discourse. Under this approach, the introduction of a distinct NP even with the same locus feature associated with it, would introduce a new index, and thus, the loci get reused.

The argument that there is no one-to-one correspondence between loci and variables is, furthermore, bolstered by the fact that loci can be shared. This is illustrated below:

- (69) EVERY-DAY, IX_a JOHN_a TELL IX_a MARY_a IX_a LOVE IX_a. BILL_b NEVER TELL SUZY_b IX_b LOVE IX_b.
 ‘Every day, John_i tells Mary_j that he_i loves her_j. Bill_x never tells Suzy_y that he_x loves her_y.’

Example (69) shows that two referents can be situated at one locus – therefore, it appears that loci can be shared. This property further undermines the strong one-to-one correspondence between loci and variables.

Another argument that shows the need to evoke features on loci arises from the uninterpreted phi-features on pronouns under focus-sensitive operators like *only*. Let me first consider the following English sentences:

- (70) a. *Only Mary did her homework.*
 b. *Only I did my homework.*

Example (70a) entails that John did not do his homework even though he is male, and example (70b) entails that John did not do his homework even though he is not the speaker. Thus, in English both gender and person features can be uninterpreted under *only*. These facts are paralleled by the ASL loci examples as well:

- (71) IX_a JESSICA_a TELL-ME IX_b [BILLY ONLY-ONE]_b FINISH POSS_b HOMEWORK.
 Bound reading: Jessica_x told me [only Billy_y] λz.z did z’s homework. (Kuhn 2015: 9)

If there was a one-to-one relationship between the locus and the index associated with it, then it is unexpected that the gender feature can be deleted such that it is able to refer to persons not associated at that locus. In other words, BILLY at locus b should be impossible to consider JESSICA, signed at locus a, as a value for the index associated with locus b. The fact that the sentence signed at locus b can refer to entities outside that set indicates that some features at the locus can be uninterpreted. In this case, the locus feature is uninterpreted and reference can be made to both BILLY and JESSICA.

In this section, I have presented arguments to abandon the view that there is an absolute one-to-one correspondence between loci and variables. I have also shown that the ASL data presented here are compatible with an analysis that analyzes loci as features. The following section presents an overview of the argument that variables are not obsolete in analyzing loci.

4.3.2 Arguments for loci as variables

The evidence for loci being composed of features is convincing, but there are also reasons for which I would not want to opt for a completely variable-free analysis. In addition to the fact that loci generally refer to the individual they are associated with, as seen in §2, Schlenker (2016) argues for another reason to retain variables: iconic bound loci, which refer to an individual's importance, height, or position. Loci in such instances can be set up high or low to indicate the aforementioned aspects, which makes them iconic. It appears that in these cases not all features under *only* get deleted and the iconic height feature on the locus remains intact.

Iconic bound loci in ASL can be easily captured in a variable account of loci, but the account for iconic bound loci under a variable-free analysis is not straightforward. The examples below illustrate that in ASL, high loci can be used to refer to tall, powerful, or important individuals, and the height of the loci is still interpreted under binding and under *only* (Schlenker 2016).

(72) GYMNAST COMPETITION MUST STAND BAR FINISH STAND HANG.

‘In a gymnastics competition one must stand on a bar and then go from standing to hanging position.’

a. ALL GYMNAST IX_a-neutral WANT IX-1 LOOK_a-high FINISH FILM IX_a-low.

‘All the gymnasts want me to look at them while they are up before filming them while they are down.’

- b. ONLY-CL GYMNAST IX_a-neutral WANT IX-1 LOOK_a-high FINISH FILM IX_a-low.
 ‘Only one of the gymnasts wants me to watch her while standing before filming her while hanging.’ (Schlenker 2016: 1081)

Example (4.3.2) shows that although phi-features under *only* can be uninterpreted, the height feature must necessarily keep its positional association intact. Therefore, iconic bound loci lend evidence to an analysis of loci that also makes use of variables. These facts now lead to a featural variable analysis of ASL loci. Combining both aspects of loci, Schlenker (2016) proposes a featural variables analysis, which I expand on in the next section.

4.3.3 Featural variables

The facts noted earlier in the paper show the need for an approach of loci that accounts for them as both features and variables. A featural variable analysis (Schlenker 2016) provides a platform to do exactly that. Below, I discuss how the cases of locus reuse, locus sharing, and interpretation under *only* are accounted for under Schlenker’s analysis.¹⁹

Let me first lay out the tools needed to address the observed patterns. I showed that features can be deleted under focus operators; therefore, a deletion rule is needed. Below are rules that result under a semantic or a morpho-syntactic approach. The following rule under a semantic analysis allows a feature *F* on a pronoun to remain uninterpreted under focus. For expository purposes, I discuss Schlenker’s illustration of the deletion of a potential feminine feature.

- (73) “Let *E* be an expression of type *e* and *f* a feminine feature, *F* a focus marker, and $[[\alpha]]^{O,c,s,w}$ the ordinary and focus values of α under a context *c*, an assignment function *s* and a world *w*.
- a. $[[E^f]]^{O,c,s,w} = \#$ iff $[[E]]^{O,c,s,w} = \#$ $[[E]]^{O,c,s,w}$ is not female in the world of *c*. If $[[E^f]]^{O,c,s,w} \neq \#$, $[[E^f]]^{O,c,s,w} = [[E]]^{O,c,s,w}$
 - b. $[[E^f]]^{F,c,s,w} = [[E]]^{O,c,s,w}$ (i.e. the feature *f* plays no role in the focus dimension.)
 - c. $[[[E^f]]]^{F,c,s,w} = [[E_F]]^{F,c,s,w} = E$, the set of individuals.” (Schlenker 2016: 1070)

¹⁹See Schlenker (2016) for a complete account of how a featural variable system can incorporate the various properties of loci.

The above rule states that an expression with a feminine feature f results in a presupposition failure if and only if the expression itself results in a presupposition failure or if the expression is not female in the world with context c . If the expression does not result in a presupposition failure, then the feminine feature plays no role in the focus dimension. Another alternative to feature deletion under focus is the deletion under agreement rule, which tethers to a morpho-syntactic approach. The rule below optionally requires a feature F to be uninterpreted if a pronoun is bound by an element with feature F ; i.e. when the features agree.

- (74) a. “Optionally delete feature F of a variable v^F if (i) v^F appears next to a λ -abstractor λv^F and the appearance of λv^F is triggered by an expression with feature F , or (ii) v^F is bound by λv^F .
 b. λ -abstractors inherit the features of the expressions that trigger their appearance.” (Schlenker 2016: 1071)

As opposed to the rule in (73), (74a) provides us with a deletion under agreement approach. (74a) simply states that a feature on a variable gets deleted when the variable appears next to a λ -abstractor, whose occurrence is triggered by an expression with that feature, or if the variable is bound by the λ -abstractor. The rules above allow to account for cases where the features of an entity associated with a loci are uninterpreted.

Although these rules can straightforwardly account for the deletion or uninterpreted features under focus operators, there is another option available for locus sharing cases. Below is the relevant example in (69) originally discussed by Kuhn (2015) repeated below as (75). Here, JOHN and MARY share locus a and BILL and SUZY share locus b.

- (75) EVERY-DAY, IX_a JOHN_a TELL IX_a MARY_a IX_a LOVE IX_a. IX_b BILL_b NEVER TELL IX_b SUZY_b IX_b LOVE IX_b
 ‘Every day, John_i tells Mary_j that he_i loves her_j. Bill_x never tells Suzy_y that he_x loves her_y.’ (Schlenker 2016: 1073)

The pattern noted above can be captured via deletion under agreement (74a). For a deletion analysis, one can simply say that the a locus feature get deleted under agreement as shown below.

- (76) *John*_a λi^{a} *Mary* λk^{a} t_i^{a} *tell* t_k^{a} [pro_i^{a} *love* pro_k^{a}] (Schlenker 2016: 1079)

However, it does seem a bit odd that one would be able to refer back to a locus after its features have been deleted.²⁰ Schlenker also proposes another alternative where perhaps in the example above, *John* and *Mary* form a plurality of individuals, and *ix* only refers to a part of this plurality of individuals. Given that the contribution of loci is sensitive to the assignment function *s*, and an expression *E* associated with a locus *a*, one can say that it is required that *E* in these cases denotes a part of what *a* denotes. A general part-denoting rule for loci can thus be spelled out as follows:

- (77) “For every locus $a \neq 1, 2$, if *E* is an expression of type *e*, $[[E^a]]^{c,s,w} = \#$ iff $[[E]]^{c,s,w} = \#$ or $[[E]]^{c,s,w}$ isn’t a mereological part of $s(a)$ or $[[E]]^{c,s,w}$ is present in the situation of utterance in *c* and 1, $[[E]]^{c,s,w}$ and *a* are not roughly aligned. If $[[E^a]]^{c,s,w} \neq \#$, $[[E^a]]^{c,s,w} = [[E]]^{c,s,w}$ ” (Schlenker 2016: 1080)

This rule proposes that the locus denotes the plurality *John*⊕*Mary*, and one is referring back to a part of that expression. The expression *E* has to be a mereological part of the the assignment function that maps on to the locus. Hence, there are now two options of dealing with the locus sharing examples: via deletion under agreement (74a) or via a denotation of parts (rule 77).

Schlenker’s rules allow to capture the properties of loci observed by Kuhn. The deletion rule can be evoked for the breakdown of the one-to-one correspondence under a focus operator like *only*. Moreover, the rule stated in (46) must be modified in order to account for the locus sharing instances. First, I note as Kuhn did that these examples, like the one in (75), are heavily dependent on the right context. They become possible when the discourse facilitates its use using parallelism between the two sentences or a similar mechanism, but they are not ordinarily judged as unexceptional. Taking that into consideration, the rule stated in (46), repeated in (78), can now be accordingly modified.

- (78) If $i \in \text{Dom}(F)$, then $\text{Sat}(F') = \text{Sat}(F + b_i \in \text{Ext}(\text{“NP”}))$;
else, if i is $\notin \text{Dom}(F)$, then $\text{Dom}(F') = \text{Dom}(F) \cup \{i\}$.

The loci sharing cases now require to add the following condition:

- (79) If $i \in \text{Dom}(F)$, and $b_i \in \text{Ext}(\text{“NP”})$ is consistent with the context, then $\text{Sat}(F') = \text{Sat}(F + b_i \in \text{Ext}(\text{“NP”}))$;
else, if i is $\notin \text{Dom}(F)$, then $\text{Dom}(F') = \text{Dom}(F) \cup \{i\}$.

²⁰Schlenker (2016) does not provide any further details on how a deletion analysis captures cases like (75). Without this supplementary information, the merits of appealing to feature deletion here are yet to be seen.

By adding the consistency with the context requirement in (79), now more than one NP can be associated with the same locus. When a second NP is signed at the same locus as a previous NP, it is considered a novel referent once context has determined that the second NP is not equal to the first. In other words, when MARY is signed at the same locus as JOHN, the inconsistency in the context that John is not Mary, leads me to conclude that the index is not in the domain of the file. There are scenarios that can push this claim further. For instance, if an individual is both a linguist and a student, the interpretation of signing the two at different loci or at the same locus can be informative. This point will not be addressed in more detail here, but I note that this rule does not allow to distinguish between the two alternatives of dealing with loci-reuse and sharing cases proposed by Schlenker. This formulation is compatible with either a feature deletion account or a part-whole account of the phenomenon. Below, I dwell on these possibilities a little longer.

For the purposes of my analysis of IX, I need to say nothing further. The examples noted by Kuhn suggesting that IX is composed of features is successfully integrated into my approach by adopting the rules proposed by Schlenker that are described in this section. We now have a more complete picture of the nature of the ASL IX. Even so, one can attempt to disambiguate between these two options of feature deletion or part-denotation by using the product-producer bridging examples. Schwarz (2009) proposes that these cases require the representation of a null pronoun in the structure; thus, they behave like regular anaphoric strong definites (Schwarz 2009: 268). Therefore, the sentences in (80a) are structurally understood as (80b).

- (80) a. *I bought a book the other day. The author is French.*
 b. *I bought a book the other day. The author (of it) is French.*

Such a proposal leads us to consider that *the author* in such cases was never introduced as a referent by itself, and it only exists in relation to the pronoun. One can employ a similar example in ASL, and by attempting to refer back to the locus associated with BOOK and AUTHOR with IX (without an NP), it can be determined whether AUTHOR was introduced in the discourse if IX can refer to it. Consider (81):

- (81) IX_a JOHN_a BUY IX_b BOOK_b. IX_b AUTHOR_b SELF FRENCH. IX_a JOHN_a TIRED TODAY. SLEEP. TWO HOURS LATER, WOKE-UP. THEN, REMEMBERED IX_b.
 ‘John bought a book. The author was French. John’s tired today. He fell asleep. Two hours later, he woke up and recalled it.’

My consultants maintain that the final pronoun *ix* in the example above can refer to either *BOOK* or *AUTHOR*. This example indicates that an index for each of these entities was introduced in the utterance. It seems that even though the *AUTHOR* in (81) was mentioned in relation to *BOOK*, ASL introduces a new index for it. This data points me towards the direction of the denotation of parts analysis of locus sharing and reuse cases since *AUTHOR* was separately introduced in the discourse at the same locus. It appears that *BOOK* and *AUTHOR* form a plurality of individuals associated with the same locus, and one can refer back to either part of the plurality using *ix* and the rule in (77). Under a deletion analysis, capturing these facts is not straightforward.

The example presented in (81) does not completely allow to differentiate between the two alternatives. However, we do learn something about these product-producer bridging cases. Even in such examples, *ix* allows to set up a new referent for both the product and the producer, and one can return back to the locus associated with them later on in the discourse. For present purposes, I do not expand on these data further, but leave them open for future work.

Throughout this section, I have provided evidence for loci being composed of features, and I have adopted a system of featural variables that allows to capture the full range of locus properties. These aspects are important for the analysis at hand as I crucially assume that bare NPs, unlike *ix*+NPs, are underspecified for a locus feature. The difference between the two nominal types is not that one introduces an index and the other does not, but that the type of indices introduced by the bare NPs and *ix*+NPs differ precisely in their specification of these features.

4.4 Final points

The analysis discussed here accounts for the distribution of *ix* in definite and indefinite environments. Although I have discussed the proposal in detail, some judgments presented in the literature are not in line with those of my consultants and may need further investigation. I describe those examples in this section.

Bahan et al. (1995) argue that *ix* before NPs is a definite marker, but they do so on the basis of data that are incompatible with mine, at least as they stand. They claim that *ix*+NP must necessarily be definite, which is at odds with the *ix*+NPs in donkey sentences seen earlier. They provide the example below:

- (82) # JOHN LOOK-FOR *ix*_a MAN_a FIX GARAGE.
'John is looking for a man to fix the garage.' (Bahan et al. 1995: 4)

Example (82) is taken to show that the indefinite reading is unavailable with the use of *ix*, as John is only looking for a particular man to fix the garage, not

any man. I do not agree with their argumentation here for two reasons: one, I have shown that IX+NPs have an indefinite reading, and two, it is unclear what effects are expected when a locus is set up for an entity that is not used further in the discourse. In other words, it cannot be ruled out that the IX+NP MAN in this case is truly not indefinite, or if the infelicity is simply a result of introducing an entity that is set up to be continually referred to throughout the discourse. Moreover, my consultants do not agree with this judgement. Hence, I leave this example open for further investigation.²¹

Returning to the view arguing for IX as a demonstrative, Koulidobrova & Lillo-Martin (2016) also present a pair of examples that my consultants do not agree with. Therefore, I describe them here in order to address them in more detail. Taking into consideration that definite articles are known to carry covarying readings while demonstratives do not, Koulidobrova & Lillo-Martin argue that covarying readings are unavailable with IX. Consider the English examples first:

- (83) *That guy in the red shirt always wins.* = referential / *covarying
(Nowak 2013, as cited by Koulidobrova & Lillo-Martin 2016: 229)
- (84) *The guy in the red shirt always wins.* = referential / covarying
(Nowak 2013, as cited by Koulidobrova & Lillo-Martin 2016: 229)

The above examples describe two situations, one in which any unspecified individual wins, i.e. the covarying reading, and another in which one specified person wins, which is the referential reading. Both of the above examples allow for referential readings; however, only (84) allows for the covarying interpretation. When the demonstrative *that* is used in (83), we do not get the reading for the rigged race where any person wearing red is the winner. This diagnostic is now applied to ASL to indicate that IX behaves more like a demonstrative than a definite article.

- (85) IX_a PERSON_a / IX_a RED SHIRT SELF TEND WIN. = referential / *covarying
'IX person / IX in the red shirt tends to win' (Koulidobrova & Lillo-Martin 2016: 237).
- (86) PERSON HAVE RED SHIRT TEND WIN. = referential / covarying
'The person in the red shirt tends to win' (Koulidobrova & Lillo-Martin 2016: 237).

²¹One way of resolving this example would be to continue the discourse on the man, and checking to see whether the non-specific interpretation is available, but I do not have the relevant example at hand.

It appears at first glance that these examples are problematic for the proposal. However, I have already noted that IX+NPs are perfectly compatible with donkey readings. Moreover, my consultants find a covarying reading acceptable in (85). Since there is a discrepancy in the judgments between consultants, it would be useful to retest these sentences with different contexts in order to clarify whether a covarying reading is truly unavailable in these cases. In retesting these cases, one should also be careful to test sentences that are only minimally different – (85) and (86) are not minimal pairs.

The above examples, at least on the surface, are points of contention between the different analyses. Possibly, there is true inter-speaker variation in the language as the ASL signing community is extremely spread out. Nevertheless, as I have discussed, these matters are not immediately problematic for the analysis at hand without further investigation.

4.5 Summary

Before moving on to the implications of my analysis, let me summarize my findings thus far. After I present an overview of the various discussions in this paper, I contemplate the theoretical implications of this proposal in the following section.

Previous work on ASL assumed that loci were the overt realization of an index introduced by discourse referents, and that IX+NPs were demonstratives. In this paper, I showed that both bare NPs and IX+NPs introduce an index, but these indices are of different types based on their specification or underspecification of a locus feature. In doing so, I also showed that both nominal types double as definite and indefinite expressions. This fact results in the nominals having the ability to either set up a new referent, or refer back to a familiar one if they have the same index. The ability to set up a new referent when the index is not in the domain of the file signifies that ASL definite expressions do not have a familiarity restriction.

In spite of the lack of a familiarity restriction, I also showed that the two kinds of definite articles observed by Schwarz (2009; 2013) correspond to bare NP and IX+NP in ASL when they are not indefinite. This is telling that perhaps definiteness is not completely semantically void, and that it does hold in ASL, albeit only to an extent. The next section discusses the implications of the analysis provided in this paper.

5 Discussion

Throughout this paper I have shown that the choice between bare NPs and IX + NPs appears to be more or less unrestricted, barring the unique definite environment cases, which is the only instance where IX is not permitted. The examples seen in §3 indicate that there is some restriction on locus association with unique referents. However, one can imagine a scenario in which there are two unique referents under discussion. It appears that in these cases, the locus association is not completely ruled out. Consider the following example of a unique priest and a unique principal at a school.

- (87) ? I VISIT SCHOOL. MET IX_a PRINCIPAL_a, IX_b PRIEST_b. IX_a PRINCIPAL_a NICE LADY.

‘I visited the school and met the priest and the principal. The principal is a nice lady.’

This example suggests that context can at least sometimes play a role in making IX felicitous with unique referents. Without delving into further detail, I leave open the possibility that uniqueness restrictions on IX may or may not consistently hold, although future work on such cases is necessary to determine whether definiteness in the language is semantically encoded.

6 Conclusion

The pattern of definite expressions in ASL and the proposal that resulted from it, can potentially pave the way to a new perspective on definiteness in this language. I have already shown that there is no familiarity restriction on definite expressions as a new referent can be set up if its index has not already been introduced. This tells us that definiteness might not be lexically encoded in ASL. IX was previously assumed to be an overt index, which might have taken up a special status. Given that both bare NPs and IX+NPs introduce indices and can either be definite or indefinite, one may be led to rethink the nature of definiteness in ASL, and perhaps, in sign languages overall.

Examining ASL indices and bare NPs has unveiled many aspects of the language in particular, and languages in general. It was first shown that the index IX when referring to a locus is a strong definite article, and bare NPs are weak definite articles that do not permit IX. This pattern indicates that the language distinguishes between anaphoricity and familiarity on the one hand, and uniqueness on the other. On the flip side, it was shown that the language does not have

a restriction on familiarity; a new referent can be introduced if it is not already present in the discourse.

In the literature, only ASL loci were typically viewed as indices. Here, reanalyzing definite and indefinite expressions allows us to view things a bit differently, as I proposed that bare NPs introduce indices as well. The double life of IX+NPs and bare NPs as definite and indefinite expressions, which do not have a familiarity restriction imposed on them, suggest that we are not dealing with a system that lexically encodes definiteness. Instead, I find that pragmatics might play a huge role in facilitating conversation, and in a language that has the option of using loci, the specification of a locus feature can play a role in determining whether or not an expression has been introduced.

Finally, the data reported in this paper are the judgments of three ASL signers. Future work on the topic would greatly benefit from experimental work investigating native speaker intuitions on a greater scale. There is known to be significant interspeaker variation in the community, and any such variation could be captured by surveying a larger group of ASL signers.

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References

- Arkoh, Ruby & Lisa Matthewson. 2013. A familiar definite article in Akan. *Lingua* 123. 1–30.
- 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. 2014. Use and functions of spatial planes in Catalan Sign Language (LSC) discourse. *Sign Language Studies* 14(2). 147–174.

- Carlson, Greg N. & Rachel Shirley Sussman. 2005. Seemingly indefinite definites. In Stephan Kepser & Marga Reis (eds.), *Linguistic evidence: Empirical, theoretical and computational perspectives* (Studies in Generative Grammar 85), 71–86. Berlin: Mouton de Gruyter.
- Carlson, Greg N., Rachel Shirley Sussman, Natalie M. Klein & Michael K. Tanenhaus. 2006. Weak definite noun phrases. *Proceedings of NELS* 36(1). 179–196.
- Clark, Herbert H. 1975. Bridging. In *TINLAP '75 Proceedings of the 1975 Workshop on Theoretical Issues in Natural Language Processing*, 169–174. Stroudsburg: Association for Computing Machinery.
- Dayal, Veneeta. 2004. Number marking and (in)definiteness in kind terms. *Linguistics and Philosophy* 27(4). 393–450.
- de Sá, Thaís Máira Machado, Guilherme Lourenço de Souza, Maria Luiza da Cunha Lima & Elidéa 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.
- Frege, Gottlob. 1892. Über Sinn und Bedeutung. *Zeitschrift für Philosophie und Philosophische Kritik* 100. 25–50.
- Geach, Peter Thomas. 1962. *Reference and generality: An examination of some medieval and modern theories*. Ithaca: Cornell University Press.
- Hartmann, Dietrich. 1982. Deixis and anaphora in German dialects: The semantics and pragmatics of two definite articles in dialectal varieties. In Jürgen Weissenborn & Wolfgang Klein (eds.), *Here and there: Cross-linguistic studies on deixis and demonstration* (Pragmatics and Beyond III: 2-3), 187–207. Amsterdam: John Benjamins.
- Hawkins, John A. 1978. *Definiteness and indefiniteness: A study in reference and grammaticality prediction*. London: Croon Helm.
- Heim, Irene. 2002[1983]. File change semantics and the familiarity theory of definiteness. In Paul Portner & Barbara H. Partee (eds.), *Formal semantics: The essential readings* (Linguistics: The Essential Readings 2), 223–248. Oxford: Blackwell.
- Heim, Irene. 1982. *The semantics of definite and indefinite noun phrases*. Amherst: University of Massachusetts. (Doctoral dissertation).
- Heinrichs, Heinrich Matthias. 1954. *Studien zum bestimmten Artikel in den germanischen Sprachen*. Giessen: Wilhelm Schmitz Verlag.
- Jenks, Peter. 2015. Two kinds of definites in numeral classifier languages. *Proceedings of SALT* 25. 103–124.

- Kamp, Hans. 1981. A theory of truth and semantic representation. In Jeroen Groenendijk, Theo Janssen & Martin Stokhof (eds.), *Formal methods in the study of language*, vol. 1, 277–322. Amsterdam: Mathematical Centre Tracts.
- Kimmelman, Vadim. 2015. Information structure in Russian Sign Language and Sign Language of the Netherlands. *Sign Language & Linguistics* 18(1). 142–150.
- Klima, Edward & Ursula Bellugi. 1979. *The signs of language*. Cambridge: Harvard University Press.
- Koulidobrova, Elena V. & Diane Lillo-Martin. 2016. A ‘point’ of inquiry: The case of the (non-)pronominal IX in ASL. In Patrick Grosz & Pritty Patel-Grosz (eds.), *The impact of pronominal form on interpretation* (Studies in Generative Grammar 125), 221–250. Berlin: De Gruyter Mouton.
- Krifka, Manfred & Fereshteh Modarresi. 2016. Number-neutrality and anaphoric uptake of pseudo-incorporated nominals in Persian (and weak definites in English). *Proceedings of SALT* 26. 874–891.
- Kuhn, Jeremy. 2015. ASL loci: Variables or features? *Journal of Semantics* 33(1). 449–491.
- Lewis, David. 2002[1975]. Adverbs of quantification. In Paul Portner & Barbara H. Partee (eds.), *Formal semantics: The essential readings* (Linguistics: The Essential Readings 2), 178–188. Oxford: Blackwell.
- Lillo-Martin, Diane & Edward Klima. 1990. Pointing out differences: ASL pronouns in syntactic theory. In Susan D. Fischer & Patricia Siple (eds.), *Theoretical issues in sign language research*, vol. 1, 191–210. Chicago: University of Chicago Press.
- Meir, Irit. 1998. Syntactic-semantic interaction in Israeli Sign Language verbs: The case of backwards verbs. *Sign Language & Linguistics* 1(1). 3–37.
- Nowak, Ethan. 2013. *Things a semantics for demonstratives should do*. Berkeley: University of California. (Ms. Thesis).
- Reinhart, Tanya & Eric J. Reuland. 1993. Reflexivity. *Linguistic Inquiry* 24(4). 657–720.
- Roberts, Craige. 2002. Demonstratives as definites. In Deemter van Kees & Rodger Kibble (eds.), *Information sharing: Reference and presupposition in language generation and interpretation* (CSLI Lecture Notes 143), 89–196. Stanford: CSLI.
- Russell, Bertrand. 1905. On denoting. *Mind* 14(56). 479–493.
- Schlenker, Philippe. 2010. Quantifiers and variables: Insights from sign language (ASL and LSF). *Baltic International Yearbook of Cognition, Logic and Communication* 6(1). 1–22.

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- Schlenker, Philippe. 2016. Featural variables. *Natural Language & Linguistic Theory* 34(3). 1067–1088.
- Schwarz, Florian. 2009. *Two types of definites in natural language*. Amherst: University of Massachusetts. (Doctoral dissertation).
- Schwarz, Florian. 2013. Two kinds of definites cross-linguistically. *Language and Linguistics Compass* 7(10). 534–559.
- Šereikaitė, Milena. 2019. Strong vs. weak definites: Evidence from Lithuanian adjectives. In Ana Aguilar-Guevara, Julia Pozas Loyo & Violeta Vázquez-Rojas Maldonado (eds.), *Definiteness across languages*. Berlin: Language Science Press.
- Stokoe, William. 1969. Linguistic description of sign language. *Monograph Series on Language and Linguistics* 19. 243–250.
- Wolter, Lynsey Kay. 2006. *That's that: The semantics and pragmatics of demonstrative noun phrases*. Santa Cruz: University of California. (Doctoral dissertation).

