A spanning approach to the acquisition of double definiteness in Norwegian[1]

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Abstract: This study demonstrates how lexical spanning can be used to explain the various stages in the acquisition of double definiteness in Norwegian. The approach takes syntactic terminals to consist of sub-morphemic elements that are lexicalised by words or morphemes. Work on Scandinavian DPs has demonstrated that they involve two determiner-like projections. Within the spanning approach, simple, unmodified structures in Norwegian are distinguished from modified ones by the fact that one morpheme spans both projections in the first case, while two morphological exponents are required to spell them out separately in the second. Furthermore, it has been argued that the term double definiteness is a misnomer, and that the two determiners spell out separate subcomponents of definiteness, Uniqueness and Specificity. For developmental reasons, Norwegian children start out by lexicalising these features individually. The suffixal article spells out Specificity, while a phonologically zero determiner spells out Uniqueness. When adjectives are introduced into this grammar, the result is a system that only spells out the suffixal article overtly, that is, an Icelandic type system. This development is followed by a period with a

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great deal of instability as the grammar tries to determine how to lexicalise the various terminals in the determiner phrase.

Keywords: Norwegian, acquisition, double definiteness, uniqueness, specificity, spanning.

Resumen: Este estudio demuestra como el abarcamiento léxico puede ser usado para explicar las diferentes etapas en la adquisición de la definitud doble en noruego. La propuesta considera que los terminales sintácticos constan de subelementos morfémicos que son lexicalizados por palabras o morfemas. El trabajo en los SDs del escandinavo ha demostrado que estos implican dos proyecciones de tipo determinante. Dentro de la aproximación de abarcamiento, estructuras simples, no modificadas en noruego son diferenciadas de aquellas modificadas por el hecho de que un morfema abarca ambas proyecciones en el primer caso, mientras que dos exponentes morfológicos son requeridos para deletrearlos por separado en el segundo caso. Además, se ha argumentado que el término definitud doble es un nombre inapropiado, y que los dos determinantes deletrean diferentes subcomponentes de la definitud, Unicidad y Especificidad. Por razones de desarrollo, los niños noruegos comienzan lexicalizando estos rasgos de forma individualizada. El artículo de sufijo deletrea Especificidad, mientras que un determinante cero fonológico deletrea Unicidad. Cuando los adjetivos son introducidos en esta gramática, el resultado es un sistema que sólo deletrea el artículo de sufijo de forma abierta, es decir, un sistema de tipo islandés. Este desarrollo es seguido de un periodo con una gran inestabilidad puesto que la gramática intenta determinar como lexicalizar los diferentes terminales en el sintagma determinante.

Palabras clave: *Noruego, adquisición, definitud doble, unicidad, especifidad, abarcamiento.*

Resumo: Este estudo demonstra como a noção de *spanning* lexical pode ser usada para explicar as diversas etapas de aquisição da dupla definitude em norueguês. Nesta abordagem, os nós sintáticos terminais são formados por elementos sub-morfémicos que são lexicalizados por palavras ou morfemas. Trabalho prévio sobre os Sintagmas do Determinante nas línguas escandinavas demonstrou que estes envolvem duas projeções de determinante. Na noção de *spanning* lexical, as estruturas simples, sem modificação, distinguem-se das modificadas pelo facto de, nas primeiras, um morfema abranger duas projeções; nas segundas, são precisos dois expoentes morfológicos. Para além disso, tem sido defendido que o termo 'dupla definitude' não é adequado e que os dois determinantes soletram subcomponentes distintas da definitude, a *Unicidade* e a *Especificidade*. Em virtude do seu desenvolvimento, as crianças norueguesas lexicalizam estas duas componentes individualmente. O artigo com a forma de sufixo lexicaliza a especificidade; o determinante zero soletra a unicidade. Quando os adjetivos são introduzidos nesta gramática, o resultado é um sistema que apenas soletra o sufixo, isto é, um sistema do tipo do Islandês. Esta fase é seguida de um período de grande instabilidade à medida que a gramática em desenvolvimento tenta determinar de que forma lexicaliza os vários nós terminais do Sintagma do Determinante.

1. Introduction

The Scandinavian languages differ from their Germanic relatives in having a suffixal definiteness marker. In addition, a subset of these languages (Norwegian and Swedish) also appear to include two definiteness markers in modified definite noun phrases. These phenomena are illustrated by the Norwegian examples in (1) and (2a). Furthermore, the Scandinavian languages that do not mark definiteness twice in these structures, Icelandic and Danish, differ with regard to how they mark modified definite noun phrases as definite, as shown in (2b) and (2c). Some Northern Swedish dialects display a fourth option, by marking definiteness only once with the suffixal article, but differ from Icelandic in that they pronounce the adjective and the noun as a compound. This is illustrated in (3). This option is also available in Northern Norwegian, but to a much more limited extent.[2] Interestingly, the weak adjectival inflection is not present in these structures.[3]

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[2] The differences between Northern Swedish dialects and Northern Norwegian is that while this type of compounding is used freely in the former, it is limited to 'proper-name-like' referents in the latter. As a result, a new car or a new house can be referred to as *ny-bil-n* 'new-car-the' or *ny-hus-e* 'new-house-the', in a kind of naming capacity in Northern Norwegian. If you have two cars, you can distinguish between the two by 'naming' one 'the new one' and the other 'the old one', or if you have just moved into a new house, this house can be referred to as *ny-hus-e* 'new-house-the'. A blue pen, however, cannot very easily be referred to as *blå-penn-a* 'blue-pen-the' in Northern Norwegian, simply because of the high likelihood that a person will own several blue pens, and this makes it unlikely that one particular pen can be given a 'name' in this way. This very limited use of compounding is thus clearly different from the general Northern Swedish type. Furthermore, adjectives can be stacked in Northern Swedish but not in Norwegian, such as in *gamm-svart-hus-e*, 'old-black-house-the', which again indicates that the phenomenon observed in Northern Norwegian is not normal adjectival modification.

[3] In the following, grammatical notation will be limited to a minimum. For example, no gender or plural marking will be indicated in the glosses, even though the Tromsø dialect has a three-way gender system and also marks plural nominals. However, definiteness markers will be glossed as DEF when they represent the free morpheme and as -DEF when they refer to the suffixal article. The definite suffix will also be abbreviated to *–dx* in non-gloss contexts. Norwegian has both strong (ST) and weak (WE) adjectival inflections, the latter of which occur in definite noun phrases.

(1)   hu   -**e**   (Norwegian)
       house-DEF
       'the house'

(2)   a. **Det** gaml-e hus -**e**   (Norwegian)

       b.   gaml-a hús -**ið**   (Icelandic)

       c. **det** gaml-e   hus   (Danish)

         DEF   old -WE house-DEF
          'the old house'

(3)   gamm-hus   -**e**   (Northern Swedish)
       old   - house-DEF

As the above examples illustrate, the pan-Scandinavian variation follows an interesting pattern in these structures. In some varieties (2a), here represented by Norwegian, there is a pre-nominal (pre-adjectival) and a suffixal determiner, while in others either only the pre-nominal (Danish, 2c) or the suffixal determiner (Icelandic, 2b, Northern Swedish, 3) is present. The Norwegian alternative, in which there are two determiners present, is frequently referred to as involving 'double definiteness' or 'double determination'.

The present paper discusses the acquisition of the Norwegian determiner system with a particular focus on the acquisition of double definiteness. The two determiners have been shown to be acquired at very different stages; the suffixal determiner is acquired very early in languages such as Norwegian and Swedish, while the prenominal determiner is acquired at a much later stage (Plunkett & Strömqvist 1992; Santelmann 1998; Bohnacker 2004; Anderssen 2006, 2007, 2010). While acquiring modified definites, Norwegian children produce structures corresponding to all the three types found in the Scandinavian languages, illustrated in (2), but with a clear preference for the Icelandic option.

The goal of the present paper is to account for the variation found in the development of these structures in light of a spanning approach (cf. e.g. Starke 2005, Anderssen 2006, 2007, Ramchand 2008, Dékany 2012, Svenonius 2012).[4,5] The spanning approach takes terminal syntactic nodes to consist of

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While strong adjectives exhibit (some) plural and gender marking, the weak inflection is an invariant *-e*.

[4] This approach to language has been termed nano-syntax because it argues that syntactic structures are made up of smaller units than previously assumed. However,

semantic features rather than words or morphemes, and as a consequence, lexical items (words and morphemes) can span one or several terminal nodes. In adult grammars, where vocabulary items have a stable interpretation, lexical entries are stored with an inventory of syntactic/semantic features that must be associated with syntactic structures with the same feature inventory through spell out (a process referred to as L-Match in Svenonius 2012). On this view, acquiring vocabulary items amounts to determining the feature make up of these elements. In child grammars, we thus expect some instability in the feature inventory of lexical elements as they are acquired. This seems to be true of the lexicalisation of the various elements in Norwegian children's modified DPs.

The paper is structured as follows. Section two briefly discusses the semantics of so-called double definiteness and argues that these structures should not be regarded as marking definiteness twice, but rather to consist of two lexical elements that each contribute to the interpretation of definiteness; the prenominal determiner specifies a referent as uniquely referring, while the suffixal article ensures that the noun phrase is referential (here referred to as specific). Section three relates this semantic structure to a spanning approach to language and proposes that the suffixal article in non-modified structures spans both Uniqueness and Specificity in the functional sequence. In modified structures, however, the intervention of the adjective prevents the suffix from spanning both terminals, and as a result two separate lexical items must be used to spell out the relevant features. This section also provides a proposal for the lexicalisation of all the Scandinavian variation within definite nominal structures. Finally, section four provides a detailed overview of how the lexicalisation of modified definites in Norwegian is acquired. As we will see, the children make use of all the logically possible lexicalisations of these structures, but show a clear preference for the Icelandic type. This preference is explained as the result of the initial lexicalisations in the DP domain, in which a one-feature-one-lexical-item preference is assumed. This section also demonstrates why the spanning approach is so well suited to account for the

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spanning is also a feature of other decompositional cartographic approaches, such as Svenonius (2012).

[5] In Anderssen (2006, 2007) spanning is referred to as 'straddling'.

variation found in the acquisition of these structures. The paper finishes with a short conclusion.

2. Double definiteness and the locus of definiteness

Through the years, a number of analyses have been proposed to account for the so-called double definiteness phenomenon, and various insights have been gained through these investigations (see e.g. Taraldsen 1990, Delsing 1993, Kester 1993, 1996, Santelmann 1993, Svenonius 1994, Vangsnes 1999, Julien 2002, 2005, Anderssen 2006, 2007, Roehrs 2009, Simonenko 2011 inter alia). Two of the insights that have emerged from these studies are the proposals that the Scandinavian languages include two determiner type projections and that definiteness in the so-called doubly determined languages should be regarded as compositional rather than doubly marked.

Taraldsen (1990) was the first to argue that there must be two determiner projections in the Scandinavian languages, one above and one below the adjectival projections, because the two determiners in so-called double definiteness languages are not in complementary distribution. This assumption can be extended to the other varieties as well from the point of view that even in varieties where the two determiners do not co-occur, it is the case that the suffixal article never occurs pre-adjectivally, while the free determiner never occurs postnominally. The assumption that there are (at least) two determiner type projections in the Scandinavian languages is now more or less uncontroversial and is incorporated into most analyses (e.g. Vangsnes 1999, Julien 2002, 2005, Anderssen, 2006, 2007). The prenominal determiner is taken to occur high in the structure, above the adjectival projection(s), while the suffixal article is taken to be low, below any adjectives.

On the assumption that there are two determiner projections in Scandinavian DPs, the question arises which one of them carries definiteness. Traditionally, there has been a tendency to assume that it is the suffixal article that contributes to the interpretation of definiteness (see e.g. Delsing 1993 and Julien 2002). One reason for this is that this marker is always present in definite noun phrases (recall example (1)), while the prenominal determiner only occurs in modified structures (2a). This view was argued for in Delsing (1993: 128) on the basis of the distinction in (4a) and (4b):

(4)   a. Det   finnes ikke **den minste grunn** til å betvile dette.
          there exists   not DEF least   reason to to doubt this
          'There isn't the slightest reason to doubt this.'

      b. *Det finnes ikke **den minste grunn-en**   til å betvile dette.
          there exists not   DEF least   reason-DEF to to doubt   this
          'There isn't the slightest reason to doubt this.'

In both cases the bold noun phrases occur in existential constructions, which exhibit a strong definiteness effect in Norwegian, but it is only the sentence in which the definite suffix is present that is ungrammatical. Thus, Delsing argues, it must be the suffix that makes the noun phrase definite. However, the fact that the English translation also includes the definite article and is acceptable (as also mentioned by Delsing) suggests that this conclusion is too hasty.

In the present paper, both determiners will be taken to contribute to the interpretation of definiteness. However, it is the high determiner that will be argued to make the main contribution to the definite interpretation by adding uniqueness to the noun phrase, while the (low) suffixal article will be proposed to add specificity.[6] Uniqueness is here taken to refer to a referent that is familiar and identifiable to the listener ([+hearer]), while specificity is used to refer to a referent that is familiar and identifiable to the speaker ([+speaker]), which means that the former element is the one that is taken to indicate discourse familiarity. It is this combination of uniqueness and specificity which together makes up definiteness. The identification of the high determiner as the main contributor to definiteness comes from the observation that when two modified definite noun phrases (that may be co-referential) are coordinated, it is the prenominal determiners that determine whether reference is to one or two persons (Holmberg, p.c.). This is demonstrated in (5).

(5)   **Den** unge   professor-n   og (**den**) omsorgfulle far   -n
        DEF   young professor-DEF and (DEF) caring   father-DEF
        'the young professor and (the) caring father'

When the second prenominal determiner (in brackets) is present, the noun phrase uniquely identifies two referents, while when it is absent, only one referent is picked out, equivalent to the situation found in the English translation of the example. This suggests that the prenominal article is the main contributor to the definite interpretation. However, unmodified definite noun

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[6] Another proposal in which DP structure is argued to consist of several semantically motivated layers is found in Zamparelli (2000).

phrases are also definite and pick out unique referents. So uniqueness is clearly represented in these nominals as well, which suggests that the suffixal article somehow expresses uniqueness in simple DPs, but fails to do so in modified structures.[7]

The uniqueness feature associated with the high determiner is taken to be lexicalized not only by this determiner, but also by pronouns, which share the characteristic with definites that they presuppose that the relevant referent is familiar to the hearer (i.e. [+hearer]) and unique.[8] Consequently, the idea that pronouns are essentially nounless determiners, first expressed in Postal (1970) and elaborated on in various ways in Radford (1993) and Lyons (1999), will be adopted here. The basic observation is that there is a great deal of lexical overlap between pronouns and determiners. This is also the case with the pre-nominal definite determiner; the neuter form of the determiner, *det*, doubles as the neuter third person pronoun and demonstrative, while the masculine and feminine form, *den*, doubles as the masculine and feminine third person inanimate pronoun and as the third person masculine and feminine demonstrative. This lexical overlap is illustrated in (6b) and (6c):

(6)   a.   Per kjøpte en   rød og   en grønn jakke.   (Norwegian)
             Per bought a   red and a green jacket

       b.   **Den røde jakke-n**   var finest   (Norwegian)
             DEF   rød   jacket-DEF was nicest
             'The red jacket was the nicest'

       c.   **Den** var   også den dyreste   (Norwegian)
             ut   was   also DEF most-expensive
             'It also was the most expensive one.'

In the dialect of Norwegian that the child language study investigates, a further example of lexical overlap between pronouns and determiners can be found with names and kinship terms. In the Tromsø dialect, these types of nouns are preceded by articles, and these articles take the same shape as personal pronouns. This is illustrated in (7).

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[7] Even though the two so-called definiteness-markers will not be taken to actually express definiteness twice in this paper, the terminologies used in the literature will be kept.

[8] It should be noted at this point that, while the familiarity and uniqueness requirement attributed to pronouns here generally applies, there are a number of contexts in which it does not.

(7) **Ho** (snille) Sunniva/ **han** (snille) Markus   (North Norwegian)
     she kind   Sunniva/ he   kind   Markus
     '(kind) Sunniva/(kind) Markus'

These types of articles have been referred to as expletive articles since Longobardi (1994), and are generally seen as devoid of any semantic content. In the present paper, they will be seen as spelling out a uniqueness feature just like other pre-nominal definite determiners, and will consequently be referred to as preproprial rather than expletive articles (following Delsing 1993). Another argument for the assumption that pronouns are a type of determiner comes from the observation that pronouns can be used as determiners in a limited way in some languages (see e.g. Lyons 1999). A relevant example is given in (8).[9, 10]

(8) **You** psychologists often criticize **us** linguists.

As the pre-nominal determiner is taken to make the main contribution to the interpretation of modified definites, it is clear that the contribution of the suffixal determiner must be somewhat less important, and it has already been mentioned that the relevant category will be proposed to be specificity. The distinction between specific and non-specific nominals is one that is usually associated with indefinites and is used to account for the distinction between (9a) and (9b) and the ambiguity in the interpretation of the nominal in (9c).

(9) a. I saw **a monkey** in the zoo today. **It** was really funny.
     b. Pass me **a hammer**. #**It** is behind you.
     c. I am looking for **a book**. **It** was on the table/#**it** is about art.

Generally speaking, a nominal is regarded as specific when the speaker has a specific referent in mind, while in the non-specific case, the speaker has no

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[9] This possibility does not exist in all languages, such as for example Catalan and Spanish. Thanks to an anonymous reviewer for pointing this out to me. Also, note that even though pronominal forms used as determiners seemingly are identical to regular pronouns, this is not the case; the pronominal form will span the entire functional sequence and thus will spell out different features to the determiner-like element.

[10] The fact that person features are an important defining characteristic of nominals is something that has been pointed out before, among other places in Chomsky (1999), in which it was claimed that the highest projection in the nominal domain must carry person features. This is what is essentially assumed here. See also Longobardi (2008) for another account that associates D with person, specifically by proposing that it is the person feature that ensures type-shifting from property to individual denotation.

specific referent in mind and reference is to a type of object rather than to a token. This notion of specificity originates in Fodor and Sag (1982), who refer to it as 'referentiality'. The example in (9a) makes reference to a specific token, namely a specific monkey that the speaker saw in the zoo, while the one in (9b) does not; it refers to a type of object rather than a specific instantiation of that object. The intentional context in (9c) yields an ambiguous interpretation of the indefinite noun phrase, where reference is either to a specific book that the speaker has in mind, or to any object that fits the description book. Vangsnes (1999) suggests that being specific is equivalent to "having an ordinary discourse referent" (Vangsnes, 1999: 37). This means that specific noun phrases establish the existence of a referent, and as such can be referred back to by a pronoun. The examples in (9) illustrate this; the specific indefinite in (9a) can be referred back to by a pronoun, while the non-specific referent in (9b) cannot. The ambiguous example in (9c) can be referred back to by a pronoun only if *a book* is interpreted as specifically referring (for example, if it is the one that was on the table just now). On the interpretation *I am looking for any book*, however, it cannot, because no anaphoric referent has been established.

Now let us briefly turn to the question of how the definite suffix can be said to express specificity. It is clear that if this is the case, it is only true in modified structures, as simple structures also involve uniqueness but no prenominal determiner. However, modified definites are precisely the contexts that can be used to try to tease apart the semantic contribution of the two determiners. Consider the example in (10).

(10)   a. Æ spiste ikke **[den minste bit]**$_i$ av kaka.   # **Den**$_i$ spiste ho Emily.
         I ate   not   the   smallest bit of cake   it   ate   she Emily
         'I didn't even eat a small slice of the cake. It was eaten by Emily.

       b. Æ spiste ikke **[den minste bit-n]**$_i$ av kaka. **Den**$_i$ spiste ho Emily.
         I ate   not   the   smallest bit-DEF of cake it   ate   she Emily
         'I didn't eat the smallest slice of the cake. It was eaten by Emily.'

In the above examples, we can see that in (10a), where the suffix is omitted, no referent is established, while in (10b), where it is present, a referent is established. For arguments for the idea that the suffixal article spells out specificity, see Julien (2005) and Anderssen (2006). Thus, it appears that it is not really appropriate to refer to the phenomenon as double definiteness, but the term will nevertheless be used here descriptively.

3. Double definiteness as feature spanning

So far we have seen that there is reason to believe that the prenominal determiner spells out uniqueness, while the definite suffix spells out specificity in modified structures. In simple, unmodified structures, however, the suffixal article expresses both specificity and uniqueness. Intuitively, this appears to be a situation that can be described as one in which the definite suffix seems to be prevented from spelling out uniqueness in modified structures. This intuition fits well with one of the predominant ways of accounting for the double definiteness phenomenon. In a number of accounts, the occurrence of the prenominal determiner is explained as a result of the adjective blocking the movement of the lower determiner type element past it (cf. e.g. Delsing 1993, Vangsnes 1999, Julien 2002, 2005). In the present work this intuition will be expressed within a lexical insertion account rather than a movement account.

From the examples in the introduction and the above discussion of the distribution of definiteness, it would appear that modified definites in Norwegian could be given the following simplified representation:

(11)   **[Uniqueness]** > Adjectival Projection > **[Specificity]** > Noun Phrase[11]

From this perspective, double definiteness could be seen as an adjacency problem. The phenomenon arises when the two determiners that we have suggested carry uniqueness and specificity features are separated by the adjectival projection.

Since Pollock (1989), it has become increasingly clear that the division of clauses into VP, IP and CP is too coarse, and that these projections should be split up into smaller components. Similar approaches have been taken to DP structure. This development has resulted in a proliferation of functional structure, and various attempts have been made to characterize the ordering restrictions that apply to these elements. One relevant example is Cinque's (1994, 1999) adverbial and adjectival hierarchies based on ordered semantic categories, which have been embellished on and expanded by various people. It has also been suggested that cross-linguistic variation can be attributed to whether certain projections are split up into more fine-grained structures or not.

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[11] For a more elaborate version of the structure of Scandinavian DPs, see Julien (2005) and Anderssen (2006).

This has been suggested for IP (e.g. Thráinsson 1996 and Bobaljik and Thráinsson 1998). According to these works, a language like Icelandic, which has both agreement and tense marking, can be assumed to have a split IP (TP and AgrP), while languages like English or Norwegian, which only have tense morphology, can be assumed only to have IP.

Starke (2005, 2009) proposes an alternative version of functional hierarchies that can also accommodate cross-linguistic variation of this kind. According to Starke, the functional hierarchy is a universal ordered sequence of features. As the terminals in these structures are taken to be at the sub-morphemic level, it follows that a lexical item in many cases will span more than one terminal node. Another consequence of the assumption that terminals are smaller is that syntactic structure has to be bigger than previously assumed. Starke (2005) proposes that cross-linguistic variation can be attributed to how many features, that is, how many heads, a lexical item spans when it is inserted into the sequence, rather than according to whether certain projections are split up into two or more projections or not. On such assumptions, the difference between Icelandic and English is not that IP is split into two projections in one language but not in the other, but rather that Icelandic has two lexical elements spelling out one feature each where English has one word spanning two features. Another advantage of this approach is that it is well suited to capture syncretism in morphological paradigms.

The phenomenon considered here, double definiteness, is very well suited to consider within a spanning approach; as illustrated in (2), definiteness marking exhibits cross-linguistic variation in the Scandinavian languages, and it also involves syncretism in the sense that two features in the nominal domain are syncretized into one lexical item in unmodified structures, but have separate realizations in modified structures. On the assumption that the semantic features that we have postulated to be associated with the high and low determiner projections are correct and that the sequence proposed in (11) is along the right track, it appears that the features in question are located on separate sides of the adjectival projection. When there is no adjective present, one lexical item (the definite suffix) can spell out both heads, but when an adjective intervenes between the two heads, the prenominal determiner must be included to spell out the uniqueness feature. Following Cinque (1994),

adjectives will be taken to be specifiers of functional projections on the path between N and D.[12] Adjectival projections are referred to as αP in Julien (2005), with α being the head of this projection. Anderssen (2006) argues that the weak inflection that accompanies adjectives in modified definite noun phrases should be analysed as the lexicalization of the α-head.[13] This makes the difference between simple and modified definite noun phrases as follows:

(12) a. hus -e   ~~hus~~
          house-DEF
          Noun [Uniqueness.... Specificity] ~~Noun~~

      b. det   stor-e   hus -e   ~~hus~~
          DEF   big -WEAK house-DEF   house
          [Uniqueness] Adj [α]   Noun [Specificity]   ~~Noun~~

On the assumption that pronouns generally spell out both uniqueness and specificity, the lexicalization of uniqueness and specificity in Norwegian can be represented as in (13):

(13) **Norwegian:**   **Det. Adj.-weak Noun-dx**
      Pronouns   [Uniqueness.....Specificity]
      Determiners   [Uniqueness] (realized as *den/det/de*)
      Weak adj. infl. [α] (realised as *-e*)
      -dx   [(Uniqueness).....Specificity][14] (realized as *-e/-a/-(e)n*)

    If the observations made about Norwegian are along the right track, this means that the presence of an overt prenominal definite determiner in modified structures suggests that the language has a "big" definite suffix that spans both uniqueness and specificity in the unmodified case, and two separate lexical items in the modified structures. On such assumptions, Danish is like Norwegian because there is a difference between modified and unmodified structures. The only difference between the two is that the lexicalization of specificity in modified structures has no phonological spell out in Danish. The following lexicalization is therefore proposed for Danish (14):

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[12] This fits well with the view expressed in Svenonius (2012) that a single morpheme cannot span a head and a specifier (or part of it) in an extended projection.

[13] For arguments in support of this view, see Anderssen (2006: 140-147).

[14] Throughout this paper, I will use parentheses when there are two versions of the same lexical item. In this case, the suffixal article sometimes includes Uniqueness (simple definite DPs) and sometimes does not (modified definite DPs).

(14)   **Danish:**   **Det. Adj.-weak Noun**
       Pronouns   [Uniqueness.....Specificity]
       Determiners   [Uniqueness]
       Weak adj. infl.   [α]
       -dx1   [Uniqueness.....Specificity]
       -dx2   [Specificity] (always phonologically zero)

     a.   hus   -et   ~~hus~~
        house -DEF
        Noun [Uniqueness.... Specificity] ~~Noun~~

     b.   det   stor -e   hus   -Ø   ~~hus~~
        DEF   big   -WEAK   house -DEF   house
        [Uniqueness]   Adj   [α]   Noun [Specificity] ~~Noun~~

Icelandic, however, really is different from Norwegian in the sense that modified and unmodified structures essentially look the same. In both cases, definiteness is marked by a suffixal article. This is taken as an indication that the spell-out of uniqueness and specificity is the same in both modified and unmodified structures, which again suggests that uniqueness always has a zero phonological spell-out in Icelandic. Consider the representation in (15):

(15)   **Icelandic:**   **Adj.-weak Noun-dx**
       Pronouns   [Uniqueness.....Specificity]
       Determiners   [Uniqueness] (phonologically zero)
       Weak adj. infl. [α]
       -dx   [Specificity]

     a.   Ø   hús   -ið   ~~hús~~
                     house -DEF   house
        [Uniqueness]   Noun [Specificity] ~~Noun~~

     b.   Ø   stór -a   hús   -ið   ~~hús~~
                     big   -WEAK   house -DEF   house
        [Uniqueness]   Adj   [α]   Noun [Specificity] ~~Noun~~

When stated in these terms, Icelandic intuitively seems to be the "easiest" option because the lexicalization of uniqueness and specificity is the same in simple and modified structures. As mentioned already, this option is preferred by the Norwegian children at the early stages of acquisition.

Finally, Northern Swedish makes use of a fourth alternative when it comes to the lexicalisation of the various terminal nodes in the DP. As shown in (3), in modified definite structures, the adjective and the noun are pronounced as one word in these dialects. These structures are further characterised by not

including the weak adjectival inflection. The lexicalisation of uniqueness and specificity in Northern Swedish is provided in (16).[15]

(16)　**North Swedish I: Adj.-Noun-dx**
　　　Pronouns　　　[Uniqueness...Specificity]
　　　Determiners　　[Person] (phonologically null)
　　　-dx　　　　　　[(α)......Specificity]
　　a.　Ø　　　　　　hus　-e　　　　~~hus~~
　　　　　　　　　　house -DEF　　　house
　　　　[Uniqueness] Noun [Specificity] ~~Noun~~
　　b.　Ø　　　　　　stor -hus　-e　　　　~~hus~~
　　　　　　　　　　big　-house -DEF　　　house
　　　　[Uniqueness] Adj　Noun　[α… Specificity] ~~Noun~~

Thus, Northern Swedish is similar to Icelandic in the sense that uniqueness and specificity are realised by separate lexical items in unmodified structures, but different in the sense that in modified structures, the suffixal article spans specificity and the α-head.

4. The acquisition of compositional definiteness in Norwegian

As we have just seen, the spanning approach to syntactic structure can provide an account of the cross-linguistic variation found in the DP-domain in the Scandinavian languages. In this section, we will see that it can also offer an explanation for the variation found in the modified definite noun phrases produced by Norwegian children. Considering that determiners generally tend to be omitted in child language, there are several ways in which modified definite DPs could be produced in Norwegian child language. We could imagine that they would involve none of the two determiners (17), or we could imagine that they would include one determiner only, either the pre-nominal determiner ('Danish', 18) or the suffixal article ('Icelandic', 19). Finally, they could be target-like and include both the obligatory determiners (20). All of these options are attested in child language data, as shown in (17-20).

(17)　Æ leke　**stor-e**　**bil** skal　kjøre.　　　　　　(Ole.08, age 2;2.12)
　　　I　play　big -WE　car　shall　drive
　　　'I'm playing that the big car is going to drive.'

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[15] In these Northern Swedish dialects, modified definite noun phrases can also be lexicalised exactly the same way as Icelandic structures (15). This means that when the adjective and the nouns are pronounced separately, α is lexicalised separately.

(18) **De stor-e   tøfla**.   (Ann.12, age 2;4.23)
      DEF big -WE slippers
      'the big slippers.'

(19) Ho har **gul   -e jakke-n** på.   (Ina.16, age 2;7.8)
      she has yellow -WE jacket-DEF on
      'She has the yellow jacket on.'

(20) **Det gal   -e strikk   -e**.   (Ina.11, age 2;4.1)
      DEF   wrong -WE elastic-band -DEF
      'The wrong elastic band.'

Even though all of these structures are attested in the child language production, the majority of modified DPs produced by the children are of the Icelandic type. As we will see, however, the lexicalisation of DP structures seems to be fairly unstable. Recall from the introduction that following Svenonius (2012) we will assume that syntactic structures have to be associated with the features of lexical entries in adult grammars (a process referred to as L-Match in Svenonius 2012). This is necessary to ensure a stable interpretation of lexical elements in adult grammars. In child grammars, however, the feature inventory of lexical items has to be learned, and we consequently might expect it to be variable and unstable. In this section, we will see that this is indeed the case with regard to the lexical elements involved in Norwegian definite DPs.

In this study, we will consider the modified definite noun phrases produced by two girls, Ina and Ann, and a boy, Ole, growing up in Tromsø, Norway. Recordings were made of the children when they were between the ages of 1;8.20 and 3;3.18, and the corpus consists of 70 files involving a total of approximately 47 000 child utterances (for more information on the corpus, see Anderssen 2006). The relevant information for each child is summarised in Table 1 below.

Table 1: Norwegian corpus of child language, Tromsø dialect.

Name of Child	Age	Files	No. of Child Utterances
Ina	1;8.203;3.18	Ina.01-27	20,071
Ann	1;8.20-3;0.1	Ann.01-21	13,129
Ole	1;9.10-2;11.23	Ole.01-22	13,485
Total			**46,685**

Before we consider the acquisition of modified definite DPs in more detail, we will report on a couple of case studies on the acquisition of the definite suffix in unmodified structures and pronominal elements (Anderssen 2006, 2007). Both case studies investigate data from Ina, and the reason why this is included in the present study is that by the time modified structures are attested in Norwegian child language, it is very likely that a first approximation of how DP structures should be lexicalised already exists in the grammar. As these structures thus represent the grammars that adjectival projections will be introduced into, it is important to have some idea of what these early structures look like. As we will see, it does appear that the lexicalisation of both modified and non-modified structures is affected by the order in which early elements such as the suffixal article and pronouns are acquired.

4.1. The first DP-grammars: the definite suffix and pronouns

The first determiner-type element acquired by Norwegian children is the definite suffix. In fact, the definite suffix has been shown to be acquired very early both in Norwegian (Anderssen 2006, 2007, 2010) and in the other language that exhibits double definiteness, Swedish (Plunkett and Strömqvist 1992; Santelmann 1998; Bohnacker 2004). Already in the first file in Ina's corpus, when she is 1;8.20, definite articles are included in 67% of obligatory contexts (Anderssen 2006, 2007, 2010). After Ina is two years old, the rate of article inclusion does not go below 80 per cent (with the exception of files 12 and 13, which have inclusion rates of 76 and 78 per cent respectively). Consider (21) below:

(21) *Building a lego car: Ina.01 (1;8.20)*

INA:	æ bygge.
	I build
MOT:	skal du bygge?
	shall you build
	'Are you going to build something?'
MOT:	bygge bil?
	build car
	'build a car?'
INA:	**datt bil-æ** [= def sing]. (TARGET: Der datt **bil-n**)
	fell car-DEF (TARGET: there fell car-DEF)

So it appears that the definite suffix is acquired very early, certainly if compared to the definiteness marker in languages like English and German.

This suggests that there is something about the definite suffix that makes it extremely salient in the input. The question of what it is about this element that makes it so salient in the input will be left aside here (but see Anderssen 2006, 2010 for a proposal).[16] Rather, the question of which part of the functional sequence proposed in (11) and (12) this lexical element spells out and whether the interpretation assigned to this lexical item is equivalent to that in the target language will be considered.

Pronouns are also attested at a very early stage in Ina's files, but they seem to be acquired somewhat later than the suffixal article (Anderssen 2006, 2007). For example, even though Ina produces several pronominal DPs in the first file (at age 1;8.20), all except one of these are demonstratives *det/den* 'that'. In the second file, the number of personal pronouns has increased to 15, and at the age of two, the equivalent number is 97. A few examples of the early use of pronouns are given in (22)-(23) below:

(22)   Æ bygge.   (Ina.01, age 1;8.20)
        I build

(23)   a. Æ (s)pise.   b. Der   hoppa **æ**.   c. **Du** kan få   gakkgakk.
           I   eat   there jumped I   you can get quack-quack
                                'I jumped there.'   'You can have the duck.'

        d. Se **han**.   e. Ka   **ho** har der # ned.i?
           look him   what she has there down-in
           'Look at him.'   'What does she have down there?'

        f. Der <ake> [?] **dem**   bare.
           there sledge they   only
           'There they are only sledging.'   (Ina.02, age 1;10.4)

Finding a way of comparing the acquisition of pronouns to the acquisition of the definite suffix is not an easy task. To determine the acquisition of the definite article, it is possible to give the child's level of competence a number in terms of a percentage of inclusion in obligatory (or appropriate) contexts. One problem involved in describing the acquisition of

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[16] Anderssen's (2006, 2010) account of the early acquisition of the definite suffix is a prosodic based account largely inspired by the observation that children acquiring at least Germanic languages initially interpret stressed syllables as word-onsets. She suggests that the fact that the suffixal article is postnominal makes it possible to parse it as part of the preceding noun (as one word). This is in contrast with prenominal determiners. Furthermore, a very large proportion of Norwegian nouns are monosyllabic, and all these nouns become disyllabic in the definite form, which also contributes towards making the suffixal article very salient in the input.

pronouns is that providing a target percentage of inclusion is not easy. There are a number of ways in which we could imagine postulating a target proportion of pronouns, but we will not consider these here.[17] In Anderssen (2007), the average percentage of noun phrases that were expressed by pronouns in the speech of Ina's mother and the investigator in Ina's final three files (25-27) was used to determine a target proportion of nominal expressed by pronouns. This average was found to be 45 per cent.[18] At this point it was possible to compare the acquisition of pronouns to the acquisition of the definite suffix by considering how close to the target these elements were supplied in Ina's 27 files. In order to make a statistical comparison between the two, the two series were given a linear trend line representation so that a regression analysis could be carried out (Anderssen 2007: 267). The regression analysis made it possible to compare the acquisition of the definite suffix and pronouns with regard to both the intercept (proportion of inclusion at the first data point) and the slope (the rate of development). The analysis revealed that the two lexical elements are significantly different with regard to both. Importantly for our purposes, the definite suffix has a considerably higher intercept than pronouns. From this we can draw two conclusions. First, we can see that there must be a stage in Ina's linguistic development at which she makes use of the definite suffix but does not have pronouns in her linguistic repertoire, and second, this means that it is possible to postulate a stage at which there are no manifestations of Uniqueness in Ina's grammar.

From what we have seen so far, it appears that we have the following situation: Due to the fact that the definite suffix is extremely salient in the child's input, the grammar is able to parse it quickly, and the suffix is subsequently associated with the low Specificity head in the functional

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[17] For a discussion, see Anderssen 2006: 312-317.

[18] This number does not include the inanimate third person neuter form *det* (it) and the inanimate third person masculine/feminine form *den*, because these forms are homophonous with the demonstrative, and in many cases it is difficult to determine which one it is. To ensure that the comparison with Ina's child language data was valid, this was also done when the proportion of pronouns was estimated for Ina's language production as well.

sequence.[19] Following this development, pronominal forms are acquired and are inserted into the grammar spanning the entire functional hierarchy of the DP. At this point the child probably has the following first lexicalisations of the functional structure in the nominal domain:

(24)   **Grammar 1**
        -dx   [Specificity]

(25)   **Grammar 2**
        -dx   [Specificity]
        pronoun   [Uniqueness....Specificity]

It is quite likely that relatively soon after Ina starts producing pronouns, Uniqueness must be lexicalised in all noun phrases. At this point there are two possible options; either the definite suffix must spread upwards in the sequence to span uniqueness, or another lexical item must be inserted for this purpose. It appears that the latter option is chosen. We might speculate why this might be. Most likely, this represents the easiest option in the sense that this indicates that while pronouns span the entire sequence, the sequence is divided between the noun, the definite suffix and the prenominal determiner in non-pronominal noun phrases. Recall from the recap of the various Scandinavian parameter settings that all the varieties have a one-feature/one-lexical item version of the lexicalisation of uniqueness and Specificity, which could be taken as another indication that this is basic in some way. As the grammar at this stage does not

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[19] On the assumptions made here, being assigned an interpretation means being associated with a projection in the functional sequence. In the case of the suffix, there are three possible lexicalisations of this element in the input; it either spans Specificity and Uniqueness or it spells out either Specificity or Uniqueness only. In Anderssen (2007), it is argued that the grammar chooses the second of these options. One reason why this is the most likely option is that there is a sense in which a one lexical-item-one-feature mapping is inherently simpler than spanning options. This option is also more likely empirically, because once adjectives are introduced into the grammar, the Icelandic lexicalisation pattern is preferred by the children. If either of the other two options had been chosen by the grammar, we would have expected the children to take some time to figure out where to lexicalise (locate) the suffixal article in modified structure, but this is not the case. In a system characterised by a lot of variability, the suffixal article behaves consistently. A final possible explanation for the definite suffix lexicalising Specificity only is that Uniqueness might be 'unavailable' at the point in development when the suffix is assigned an interpretation, due to some kind of cognitive immaturity, as often argued in experimental studies (see e.g. Matthewson, Bryant and Roeper 2001).

contain *attributive* adjectives, the natural assumption based on the input at this stage is that the prenominal determiner is phonologically zero.

(26)   **Grammar 3**
       -dx   [Specificity]
       pronoun   [Uniqueness....Specificity]
       determiner   [Uniqueness] (phonologically zero)

Thus, at the time when the grammar becomes sensitive to and incorporates adjectives, a lexicalisation pattern that is identical to the adult Icelandic one is already partially in place. Thus, if we assume the developmental path proposed here, it is not surprising that this option is preferred when adjectives are incorporated into the system.

4.2. The lexicalisation of modified structures

Before we start looking at the acquisition of modified definites in more detail, let us consider how modified definite noun phrases are attested in the child data in general. As already mentioned, all the logical possibilities discussed in the introduction to the present section are found in the data, as shown in examples (17-20) above. The distribution of structures is as follows: 49% (69) are of the Icelandic type (Adjective Noun-definite suffix), 5% (7) are of the Danish type (Determiner Adjective Noun), 10% (14) involve none of the determiners (Adjective Noun), and 36% (50) are target-like (Determiner Adjective Noun-definite suffix). For all the three children, it is the case that they prefer to use the suffixal article only, even if the entire recording period is considered as a whole. An overview of the children's modified definite DPs is provided in Table 2 below.[20]

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[20] Columns 1 and 7 show the age, or age range, that each period covers, while columns 2 and 8 provide the total number of double definite contexts in each period. The number and percentage of target structures in each period is provided in columns 6 and 13, while columns 3-5 and 9-11 reveal the number and percentages of the different types of non-target structures.

Table 2: The proportion of legitimate (DAN-dx) and illegitimate (AN-dx, DAN, AN) modified definite DPs in contexts where both determiners are required in the recordings of Ann, Ina and Ole.

Age (range)	Num	A N-(dx)	D A N	A N	D A N-dx	Age (range)	Num	A N-(dx)	D A N	A N	D A N-dx
1;8.20	0				0	2;6.19-21	3	1 (33)	1 (33)		1 (33)
1;9.10-18	1	1 (100)			0	2;6.25	0				0
1;10.0-4	6	1 (17)		5 (83)	0	2;7.8-14	3	2 (67)			1 (33)
1;10.22-1;11	2	1 (50)		1 (50)	0	2;7.20-22	15	6 (40)			9 (60)
1;11.13-26	7	5 (71)		1 (14)	1 (14)	2;8.4-12	10	6 (60)	1 (10)		3 (30)
2;0.5-17	1	1 (100)			0	2;8.22-24	15	8 (53)	1 (7)		6 (40)
2;1.0-7	10	7 (70)			3 (30)	2;8.27	4	1 (25)			3 (75)
2:1.23	0					2;9.15-18	4	3 (75)			1 (25)
2;1.26-29	4	4 (100)			0	2;10.0-2	7	3 (43)	1 (14)		3 (43)
2;2.12-19	12	6 (50)	1 (8)	2 (17)	3 (25)	2;10.13-22	11	3 (27)		3 (27)	5 (46)
2;3.9-15	5	4 (80)			1 (20)	2;11.5	2				2 (100)
2;4.0-6	1	1 (100)			0	2;11.23-3;0.1	0				0
2;4.21-28	10	3 (30)	1 (10)	2 (20)	4 (40)	3;1.8	3	2 (67)	1 (33)		0
2;5.10-18	1				1 (100)	3;2.5	0				0
2;5.25-2;6.2	2				2 (100)	3;3.18	1				1 (100)
						TOTAL	140	69 (49)	7 (5)	14 (10)	50 (36)

Despite the overall preference for the Icelandic type structures in all the three children and the low number of structures of the relevant kind in the corpus as a whole, it is possible to discern some general developmental trends from this table. However, in order to do this, it is necessary to consider the data in terms of two periods. The first of these periods will cover the age from approximately 1;9 to 2;6, and the second from 2;7 to 3;4. Interestingly, the Icelandic type structures are evenly distributed between the two periods (32/64 in each). In addition, the structures involving none of the two determiners are more or less only found in the early period (11/14). The vast majority of the structures that involve the prenominal determiner, the Danish (DAN) and the target-like ones (DAN-dx), however, are found in the second period (5/7 and 35/50, respectively).

As mentioned, we base the earliest lexicalization of the DP-grammar on a case study of Ina. If we compare Ina's modified structures to the other two children, there are two important ways in which they are different from Ina. First, Ina does not combine adjectives and nouns until after the age of two, but when she does, it does not take long before she includes both determiners in these structures (but, as we will see, not necessarily in a target-like manner). Second, she does not produce any modified structures with no determiners, of the type illustrated in (17), but she does produce a few more Danish type structures than the other two children (4/7). For Ann and Ole, on the other hand, there is a period of approximately two months between the first occurrence of an obligatory context for double definiteness and the first example that includes both definiteness markers. However, the two of them combine nouns with attributive adjectives at an earlier stage than Ina does. Because of these, and other, differences, the development in the lexicalisation of the structures produced by Ina will be dealt with separately from Ann and Ole.

Let us now consider what kinds of modified structures the children produce at the earliest stage of development. All the three children produce Icelandic type structures. The fact that this pattern is used by the children is not at all surprising considering that this in fact appears to be identical to the lexicalisation pattern that they have settled on prior to the introduction of adjectives (cf. Grammar 3 above). Thus, when the grammar becomes sensitive to and incorporates adjectives, Grammar 3 only has to be reorganised to include the α-head, lexicalised by the weak inflection. This Grammar is provided in (27):

(27) **Grammar 4** **(Icelandic grammar)**
-dx [Specificity]
pronoun [Uniqueness....Specificity]
determiner [Uniqueness] (phonologically zero)
-e [α]

This lexicalisation is identical to the one proposed for Icelandic. At this point, as adjectives have been associated with their place in the functional hierarchy, it appears that this has a number of consequences for the structure of the grammar. As we will see, it seems like this destabilises the children's DPs. Some examples of early structures produced by the children are given in (28). Examples of Icelandic structures (matching Grammar 4) from all the three children are provided in (28c-e).

(28) a. **(S)tor -e mann** har spist alt   opp xxx.[21] (Ann.03, age 1;10.2)
          big -WE man has eaten everything up
          'The big man has eaten everything up.'

      b. Æ leke **stor-e bil** skal kjøre.   (Ole.08, age 2;2.12)
          I   play big -WE car shall drive
          'I'm playing that the big car is going to drive.'

      c. Der   er **lille   barn-e**.   (Ann.03, age 1;10.2)
          there is little.WE child-DEF
          'There's the little child.'

      d. **Stor -e   mann -n**.   (Ole.03, age 1;10.22)
          big -WE man -DEF
          'the big man'

      e. **Stor-e   troll-e**   (Ina.06, age 2;1.0)
          big -WE troll-DEF
          'the big troll'

      f. **Stor troll-e**   fota-n[22]
          big troll-DEF feet -DEF
          'the big troll'

      g. Og **stor den buksa**[23]   sette tog -en
          and big DEF trouser(DEF) sit   train-DEF
          'And the big trousers are on the train.'

In addition to Icelandic structures, Ann and Ole produce bare structures (AN), as illustrated in (28a-b) in the early files. Ina's files, however, do not contain any modified structures with no determiners, but do include some other non-target structures. As an example of this, first consider (28f), in which the adjectival inflection has been (illegitimately) omitted. Second, consider (28g), which occurs in the same file. At first glance, this example appears to be the first modified definite structure involving the prenominal definite determiner. As we can see, the structure includes an adjective, the free definite determiner and a noun, but it is clearly not target-like, as the adjective precedes the free determiner. The gloss in (28g) provides one suggestion as to the interpretation

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[21] xxx is used to indicate unintelligible speech that is believed to consist of more than one word.

[22] This example includes an illegitimate definite article on the possessum (head) noun.

[23] *Buksa* 'trousers' belong to a group of feminine nouns ending in *–a* that are homophonous in the bare and the definite form, and consequently, it is not possible to determine whether they are definite or not. These have been referred to as bare definites (Anderssen 2006). There are also some bare definite neuter nouns ending in *– e*. Bare definite nouns will be glossed as *noun(DEF)* in definite contexts, such as in (28g) above.

of this structure, that is, one that involves a modified definite structure with the free determiner (illegitimately) placed in a position below the adjective. Another possible interpretation of (28g) is provided in (29):[24]

(29) og den er stor den buksa   som sett på tog -e
      and it is   big that trouser(DEF) that sit   on train -DEF
      'and they are big those trousers that are on top of the train'

It is not easy to determine whether (28g) should be regarded as a modified definite DP or not. However, the fact that there are a couple of other structures in which an adjective precedes an element that looks like a prenominal determiner in Ina's files suggests that this might in fact be the case. The two other examples of post-adjectival determiners are provided below. Note that while the structure in (30) could get a similar interpretation to (29) ('is it black that fish?'), this does not seem to be a possibility in (31).[25]

(30) **svart den fisk?**   (Ina.09, age 2;2.12)
      black DEF fish
      'The black fish?'

(31) eg har **rød den genser-n   mi**.   (Ina.18, age 2;8.12)
      I   have red DEF jumper-DEF my
      'I have my red jumper.'

Interestingly, all of the exceptional structures attested in Ina's files share the characteristic that the adjectival inflection is missing.

If we summarise the variation seen in the early child data in (28), it appears that Ann and Ole produce A-we+N-dx or A-we+N. Ina, on the other hand, produces A-we+N-dx, A+N-dx, or A+D+N-dx. Considering that the occurrence of this variation coincides with the introduction of adjectives into the grammar, it seems likely that this might be the source of the confusion. This view is supported by the fact that the variation seems to be contingent on whether the weak inflection, which is taken to spell out the α-head, is present or not.

Recall from (16) in section 3 that in North Swedish, the definite suffix can be lexicalised in two ways, one in which it spells out Specificity and one in

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[24] One reason why both these interpretations are possible is that *den*, in addition to being a determiner, also can be a demonstrative ('that') or a pronoun ('it').

[25] For a more detailed discussion of these structures, see Anderssen (2006: 327-330).

which it spans Specificity and the α-head. This means that α may also be lexicalised by a word or morpheme that spans more than one head in adult grammars. In fact, it appears that this is the precise possibility that is being explored by all the children here, but in different ways in Ann and Ole's grammars than in Ina's. The following possible lexicalisations of α can be observed, with Ann and Ole allowing the spans illustrated in the Type I α-grammar, and Ina allowing slightly more variation, that is, the possibilities shown in Type II:[26]

(32)   **α-grammar**

      Type I   -e   [α….(Specificity)]
                  -dx   [Specificity]

      Type II -e   [α]
                  den [α]
                  -dx   [(α)….Specificity]

This yields the following lexicalisations for Ann and Ole to account for the two types of structures that they produce:

(33) a. Ø   stor-e   bil.   (Ole.08, age 2;2.12)
           [Uniqueness] big -WE [α….Specificity] car

      b. Ø   lill   -e   barn -e   (Ann.03, age 1;10.2)
           [Uniqueness] little -WE [α] child -DEF [Specificity]

While in Ina, we see the following associations with the functional sequence:

(34) a. Ø   stor-e   troll -e   (Ina.06, age 2;1.0)
           [Uniqueness] big -WE [α] troll -DEF [Specificity]

      b. Ø   stor troll -e
           [Uniqueness] big   troll -DEF [α…….Specificity]

      c. Ø   stor den buksa
           [Uniqueness] big [α]   trouser(DEF) [Specificity]

As we can see from (32), (33) and (34), there are several ways in which the α-head may be lexicalised in the grammar. Interestingly, all of the above examples appear in Ina's grammar at the point when the first adjective-noun combinations appear. This suggests that the confusion is fairly instantaneous with regard to how the combination of α and Specificity should be lexicalised. If the interpretation of the data in (34c) is correct, it appears that upon

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[26] These structures are somewhat simplified in comparison with the adult structures in (12)-(16). For example, they do not show that the noun originates below Specificity, except in those cases when the noun does not seem to move, such as (33a).

encountering the prenominal determiner in the input, the grammar initially wrongly associates it with the α-head. Considering that the grammar already has a lexical item (albeit phonologically silent) spelling out Uniqueness, this is perhaps not surprising.

The next definite adjective + noun combinations in Ina's files are found in the ninth recording, where she produces both Icelandic structures and her first double definiteness structures, as well as the second structure in which the α-head is lexicalised by a free determiner. Interestingly, this is also the first file in which Ina produces compounded adjective-noun structures. Examples of all four types are given in (35) below, with the relevant feature combinations.

(35) a. Ø   svart-e   farge -n   (Ina.09, age 2;2.12)
          [Uniqueness] black-WE [α]   colour-DEF [Specificity]

      b. ho   fin -e   dukka
          she [Uniqueness]   nice -WE [α] dolly(DEF) [Specificity]

      c. Ø   ros -fisk-en   (TARGET: Rosa-fisk-en)
          [Uniqueness] pink-fish-DEF [α....Specificity]   (TARGET: pink -fish-DEF)

      d. Ø   svart-brus-n
          [Uniqueness] black-pop-DEF [α...Specificity]

      e. Ø   svart den   fisk.
          [Uniqueness] black DEF [α....Specificity] fish

There are several things that are interesting regarding this stage in Ina's development; importantly, she produces her first target modified structure in the sense that it includes an overtly manifested prenominal determiner (35b). As we can see, Ina still produces Icelandic structures (35a). This is not surprising considering what we saw in the description of the data in the beginning of this subsection; the Icelandic structures are frequently attested throughout the period of data collection. However, in this file, Ina produces her first adjective-noun compounds. One of these compounds, (35d), is target-like in its form. The weak inflection has been omitted. This is in contrast with the non-compounded DP in (35a), in which the weak inflection lexicalises α. In the non-target example, (35c), Ina (illegitimately) omits the word final vowel of the adjective, which in this case is part of the stem in the target language. This reinforces the general impression that this type of compounding is associated with the lack of the weak inflection even in Ina's immature grammar. According to the current proposal, the definite suffix spans both Specificity and the α-head in these structures. Interestingly, Ina appears to be using these

compounded structures as if they are regular modified definites here, that is, in the North Swedish rather than the North Norwegian (naming) way (cf. footnote 1). The examples given here feel a bit too common-noun-like to be completely felicitous in the target language. Finally, the ninth file includes another example of the kind that has been proposed to involve the use of the determiner den to lexicalise α. However, in this example, the determiner seems to also span Specificity (35e).

So far, we have seen that in its pre-adjectival interpretation of the input, the grammar has chosen the Icelandic way of lexicalising the functional hierarchy, and that the subsequent lexical insertion of adjectives destabilises the grammar. One important change that happens at this stage is that the possibility of lexicalising the heads in the nominal domain by spanning several terminal nodes starts being used in non-pronominal noun phrases as well. If α and Specificity may be spanned by a version of the definite suffix, then there must be other possible permutations within the grammar as well. Simultaneously we have seen that an additional lexicalisation of Uniqueness has appeared, a phonologically overt one. This is probably an important step in the development towards the target structure, and one that is initially manifested by a preproprial article (cf. the example in (7)) rather than the prenominal determiner. This means that in addition to the various other possible lexicalisations described in Grammar 4 in (27) and in the α grammar in (32), the overt determiner *det* 'the' must be added. This lexicalisation is included in Grammar 5 below:

(36)   **Grammar 5 (Ina)**
          pronoun   [Uniqueness....Specificity]
          determiner   [Uniqueness] (phonologically zero)
          ho   [Uniqueness]
          -dx   [(α)....Specificity] (*-a/-e/-(e)n*)
          -e   [α]
          den   [α.......(Specificity)]

With Grammar 5 there is a sense in which Ina is coming closer to the target both in terms of the kind of lexical item that spells out Uniqueness, and in terms of the fact that the definite suffix is starting to span a larger chunk of the functional sequence.

In their next approximation of the target grammar, Ann and Ole continue to produce both Icelandic type structures (37a-c) and structures with

no (overt) determiners (37d-e). However, as of file six (age 2;1.5) for Ole and five for Ann (age 1;11.26), they also produce target-like structures (37f-h).

(37) a. på Ø   stor-e   bord-e.
          on [Unique]   big -WE [α]   table- DEF [Specificity]
          'on the big table'   (Ole.05, age 2;0.10)

      b. Ø   stor -e   elg -en   er   her.
          [Unique] big -WE [α] moose-DEF [Specificity] is   here
          'The big moose is here.'   (Ann.16, age 2;7.14)

      c. Han rope etter Ø   andre   Mikkel Rev-en.
          he   shout after [Unique] other.WE [α] Mikkel Fox-DEF [Specificity]
          'He is calling for the other Mikkel Fox.'   (Ole.17, age 2;8.24)

      d. Ø   lill -e   gutt[27]
          [Unique] little -WE [α....Specificity] boy
          'the little boy'   (Ann.05, age 1;11.26)

      e. Du [/] <du ta>[//] æ holde her   nede
          you you take   I   hold here down   (Ole.20, age 2;10.15)
          og   du prøve med Ø   stor -e   kniv.
          and you try   with [Unique] big -WE [α....Specificity] knife
          'I'll hold down here and then you can try with the big knife.'

      f. Den   andre   dukka
          DEF [Unique] other.WE [α] dolly(DEF) [Specificity]
          'the other dolly'   (Ann.05, age 1;11.26)

      g. Den   lill -e   mummi -en
          DEF [Unique] little-WE [α] moomin-DEF [Specificity]
          'the little Moomin'   (Ann.15, age 2;6.21)

      h. Har det   bitte lit -e[28]   lamm-e
          have DEF [Unique] tiny   little-WE [α] lamb -DEF [Specificity]
          'have the tiny little lamb'   (Ole.06, age 2;1.5)

This means that Ann and Ole's Grammar 5 is as follows:

(38) **Grammar 5 (Ann & Ole)**
      pronoun   [Uniqueness....Specificity]
      determiner   [Uniqueness] (phonologically zero)
      determiner   [Uniqueness]
      -dx   [Specificity]
      -e   [α....(Specificity)]

Except for the fact that Ina's lexicon has erroneously associated the target prenominal determiner with the α-head (and allows it to span the α-head and

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[27] This example would be acceptable as a vocative, but is not a vocative in this context.

[28] This is actually the strong inflection for this particular adjective. The weak form should be *lille*. As this inflectional ending is homophonous with the weak inflection, I will not attribute any significance to this.

Specificity as well), the only differences between the grammar in (36) and that in (38) are that Ina's grammar is using the definite suffix to lexicalise [α…Specificity], while Ann and Ole are using the weak adjectival inflection. Importantly, at this point all the three children's grammars have started incorporating an overt prenominal determiner and have started expanding the properties covered by the definite suffix and the adjectival inflection (and den).

The children studied here clearly do not settle on the target lexicon in the course of the time when data was collected from them. However, there are some signs that this is about to happen, and one such sign appears to be the appearance of Danish structures:

(39) a. Ta **den andre   bit** av.   (Ina.18, age 2;8.12)
         take DEF other.WE bit off
         'Take the other bit off.'

     b. **De   stor-e   tøfla**.   (Ann.12, age 2;4.23)
         DEF.PL big -WE slippers

     c. <Og den> [/] og   den passe   (Ole.14, age 2;6.21)
         and that   and that fits

         til **det andre   bil**.   (TARGET: den andre   bil -n)
         to DEF other.WE car   (TARGET: DEF other.WE car-DEF)

If we disregard the example in (35e), which was counted as a Danish structure due to the presence of a prenominal but no suffixal determiner, these structures all appear at the later stage in the recording period. Of the seven examples that there are totally, Ina's occur from age 2;8.12, Ole's are found from age 2;6.21, while Ann's only structure of this type is attested at age 2;4.23. Also, recall that the vast majority of target-like structures also occur in the second half of the data material (35/50).

5. Conclusion

We have seen that a spanning approach can provide an interesting account of the cross-linguistic variation found with definiteness marking in the Scandinavian languages. Furthermore, we have shown that spanning can provide an explanation for the variation attested in the course of the acquisition of these structures as well. In the period from which we have language data from the three Norwegian children, there is a great deal of vacillation with regard to the lexicalisation of modified definite structures. This variation is expressed in the two grammars described in (36) and (38). We have also seen

that the children do not converge on a target structure in the course of the period that the data collection took place. However, there is reason to believe that this will indeed happen at some stage in development. Even though we are not able to study how this happens, it is interesting to speculate how it might occur. Recall that in the target grammar, the suffixal article is assumed to span Uniqueness and Specificity in unmodified structures, while the two features are spelled out separately in modified DPs.

Despite the high degree of variation that has been attested, it seems to be the case that many of the lexicalisations that the children try out are maintained in the grammar for a long time. So even though we have seen that there are some differences between the early and the late periods, the variability in the system can be said to be fairly stable. This raises the question of how such a grammar will eventually converge on the target lexicalisation described above. One possibility is that the child settles on the target grammar once something dramatic changes; for example, when the phonologically zero (prenominal) determiner is wiped out of the grammar, it becomes vital for the definite suffix to span Uniqueness as well as Specificity, as a grammar with overt spell-out of Uniqueness will yield infelicitous use of the prenominal determiner in unmodified structures unless this system also includes the spanning suffixal article (cf. Anderssen 2007).

Another, and more interesting possibility, is that some of these non-target structures, such as the Icelandic, Danish, and Swedish type structures that we have seen attested in the child language data, are not actually wiped out of the grammar but rather stored and used in special cases in the adult language. This might explain why compounding type structures can be used in certain situations in Northern Norwegian (such as in *ny-bil-n* 'new-car-the') and why some high adjectives seemingly can appear without a prenominal determiner (such as in *andre vei-en* 'other way-the'). If this is the case, the non-target-like structures attested in child language will remain possible lexicalisations in the adult language, but will be limited to special cases.

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