

# Language Mixing in American Norwegian Noun Phrases

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## Abstract

This article investigates the morphosyntax of American Norwegian noun phrases that show mixing between Norwegian and English and proposes a formal analysis of these. The data show a distinct pattern characterized by English content items occurring together with Norwegian functional material such as determiners and suffixes. In the article, it will be argued that an exoskeletal approach to grammar is ideally suited to capture this empirical pattern. This framework crucially separates the realization of functional and non-functional terminals in an abstract, syntactic structure. Insertion of functional exponents is restricted by feature matching, whereas insertion into non-functional terminals is radically less restrictive. English exponents for noun stems are thus easily inserted into open positions in the structure, whereas functional exponents are typically drawn from Norwegian, as these are better matches to feature bundles comprising definiteness, number, and gender. In addition to the typical mixing pattern, the article addresses an unexpected empirical phenomenon, the occurrence of the English plural *-s*, and proposes a possible analysis for this using the exoskeletal framework. The formal analysis of American Norwegian noun phrases also exemplifies how an exoskeletal approach complies with the ideal of a Null theory of language mixing.

## Keywords

American Norwegian – exoskeletal analysis – language mixing – morphosyntax – noun phrase

## 1 Introduction

This article has two main goals. The first goal is to provide a detailed analysis of American Norwegian noun phrases that show language mixing of Norwegian and English. The second goal is to demonstrate that an exoskeletal model is ideally suited to capture the empirical patterns.

Apart from the domain of second language acquisition, most previous work, and in fact much current work, on formal grammar has, at least implicitly, been focused on the ideal speaker/listener (as described in Chomsky, 1965). This strategy has certainly enabled scholars to achieve insight into the language faculty and has carved the theoretical foundation of generative syntax (Lohndal, 2013). Currently, however, research is moving beyond this idealization and languages and linguistic phenomena often labelled as peripheral, such as language mixing, are given increasing attention. Accounting for such phenomena and patterns will without a doubt give a more realistic and nuanced picture of what the speaker actually encounters and will “help refine our perspective on general grammatical theory” (Muysken, 2000: 3).

This article provides a contribution by investigating the morphosyntax of noun phrases that show mixing between Norwegian and English in the heritage language American Norwegian (henceforth AmNo). This is a variety of Norwegian spoken by Norwegian settlers who came to the US a century or more ago, as well as their descendants, and even today some people still speak this variety. Thus, AmNo exists as a minority language in a society where the dominating language is English and the contact between Norwegian and English has resulted in outcomes often showing a mixture of the two. In this article, I show that mixed noun phrases follow a clear and predictable pattern, and I argue that an exoskeletal approach to grammar provides a good analytical tool for analyzing them.

The organization of the article is as follows. In Section 2, the empirical focus of the article, AmNo, is introduced, as well as the corpus that will be investigated. The theoretical background is presented in Section 3 before a formal model for the AmNo noun phrase is proposed in Section 4. Section 5 applies the theoretical framework and the model to the empirical data showing how an exoskeletal approach can provide a formal analysis of language mixing in the AmNo nominal domain. In addition to analyzing the typical mixing patterns, the more unexpected occurrence of the English plural suffix *-s* is discussed in Section 6. Section 7 concludes the article.

## 2 The Heritage Language American Norwegian

As already introduced, the empirical interest of this article is the heritage language AmNo. The term *heritage language* describes a language situated in the midst of a community where a different language is dominant and can be defined in the following way: “A language qualifies as a *heritage language* if it is a language spoken at home or otherwise readily available to young children, and crucially this language is not a dominant language of the larger (national) society” (Rothman, 2009: 156). As in a monolingual situation, acquisition of a heritage language is based on naturalistic input, but the result may be qualitatively different due to degraded input conditions and influence from the majority language, and additionally the lack of formal education (see, e.g., Montrul, 2008; Rothman, 2009; Benmamoun, Montrul, & Polinsky, 2013). Speakers of such varieties are accordingly referred to as *heritage speakers*, and they are considered native speakers of the heritage language as it is “acquired from naturalistic exposure, in early childhood and in an authentic social context/speech community” (Rothman & Treffers-Daller, 2014: 95). Nevertheless, their competence in adulthood often differs from speakers growing up in a society where this language is dominant. In the literature, this divergence has been analyzed as incomplete acquisition (see, e.g., Polinsky, 2006; Montrul, 2008) or attrition (see, e.g., Polinsky, 2011; Pascual y Cabo & Rothman, 2012).<sup>1</sup> For the purposes of the present article, the differences between these two concepts need not concern us.

As mentioned in the introduction, AmNo is the variety spoken by Norwegian immigrants who settled in the US in the period roughly from the mid-1800s until the 1920s, and also their descendants. During this period of time, a total of over 800,000 Norwegians immigrated to the US. Many of them settled in the Midwest area, where large Norwegian communities were established. The Norwegian language was actively used in these communities, e.g., in churches and in newspapers, and importantly also as the home language. In fact, due to these Norwegian settlements, few of the original immigrants became bilingual, but learned only as much English as was needed to get by (Haugen, 1953). However, the necessity of knowing English gradually expanded and English was established as the language spoken in commercial activities, in larger social groups, and in schools, whereas Norwegian was limited to domestic use

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<sup>1</sup> Although their competence may resemble that of adult L2 learners, heritage speakers typically outperform L2 learners of the language (Pascual y Cabo & Rothman, 2012; Benmamoun *et al.*, 2013).

and to the local community. With time, also this usage of Norwegian decreased in favor of English.<sup>2</sup> Today, AmNo is a moribund language only spoken by a few elderly individuals.

AmNo has been documented and studied in several publications (e.g., Haugen, 1953; Hjelde, 1992, 1996; Grimstad, Lohndal, and Åfarli, 2014; Eide & Hjelde, 2015; Westergaard & Anderssen, 2015; Åfarli, 2015a, b; Johannessen, 2015a, b; Larsson & Johannessen, 2015; Lohndal & Westergaard, 2016). As many of these publications demonstrate, the growing contact with English has left its mark on the variety, exemplified by, for instance, the occurrence of English items and signs of attrition. In this article, I will focus on the co-occurrence of English and Norwegian items in AmNo noun phrases, a phenomenon referred to as language mixing.

### 2.1 *The Corpus of American Norwegian Speech*

AmNo data have been collected in several rounds. Einar Haugen carried out extensive fieldwork in the 1930s and 1940s, presented in his seminal *The Norwegian Language in America* (1953), and more data was collected in the 1980s by Arnstein Hjelde (Hjelde, 1992). The most recently collected corpus is the *Corpus of American Norwegian Speech*, henceforth CANS (Johannessen, 2015b), and this is the dataset under investigation in this article. This corpus is created at the Text Laboratory at the University of Oslo, and it currently comprises recordings of 50 individual speakers.<sup>3</sup> The majority of these speakers are US-born (two are Canadian), and even though their first language (L1) is AmNo, their dominant language at the present time is English. Due to the bilingual nature of the speakers, the corpus is a rich source of language mixing between Norwegian and English. The speakers are also primarily elderly people, ranging from 70 to 100 years old, and even though the frequency of speaking AmNo varies extensively, from speaking it daily to not having practiced it for many years, many speak it more or less fluently (Johannessen & Salmons, 2012).

CANS is made available as a searchable database online. The material is transcribed at two levels: a broad phonological transcription and an orthographic transcription. The latter is standardized to the Norwegian written standard *Bokmål*.<sup>4</sup> In addition, the corpus also offers sound and video files, allowing the

2 To illustrate, approximately 650,000 Americans declared Norwegian as the language of their childhood home in 1940, whereas 81,000 reported to use Norwegian at home in 1990 (Haugen, 1953; Hjelde, 2000; see also Johannessen & Salmons, 2015).

3 The collections started in 2010 and the corpus is still growing.

4 Written Norwegian has two standardizations, *Bokmål* and *Nynorsk*. *Bokmål* is used by the majority of Norwegians. See Venås (1993) and Vikør (1995) for more on the Norwegian language situation.

researcher to listen to the actual recording of each speaker. Unfortunately, the corpus does not enable searching directly for single English items. Instead, one can apply the search option “x” which returns all items not found in the Norwegian (*Bokmål*) dictionary, among them a considerable amount of English items. Such a search will, however, also provide various dialect words which need to be separated out. When searching the corpus for the current study, the tag “x” was used and subsequently, relevant noun phrases were manually selected. In addition to Norwegian items and/or non-nouns, proper nouns, fixed expressions, and immediate repetitions were eliminated. To ensure that the remaining data are in fact cases of language mixing, both levels of transcriptions, as well as the context and sound files were considered, as these are all factors that may contribute to settling the issue.

This search leaves 1265 English nouns in the corpus.<sup>5</sup> Seventy-five of these occur without an immediate context, thus making it impossible to tell whether or not they are cases of language mixing. One hundred fifty-six nouns are found in an English context, either as part of an English phrase or larger English piece of structure. Among these, all except one<sup>6</sup> have English inflection, suggesting that the speaker is not engaged in mixing, but has in fact switched to speaking English in these cases. The largest share of English nouns, 1034 in number, occur inside an otherwise Norwegian context, and these are thus the most interesting cases for the question of language mixing and the current article.

In the next step, these 1034 English nouns appearing in a Norwegian context have been sorted according to the functional items or affixes they appear together with. Thirteen of them show a combination of both English and Norwegian functional material. A total of 93 cases occur with only English inflection, more specifically the English plural -s, in the sample. These are discussed in Section 6. The majority of the nouns in the Norwegian context, 730 cases, are utterly embedded into a Norwegian structure, showing no English inflection. True enough, about half of them do not show any inflectional morphemes at all, but they are also found in a context where Norwegian nouns typically do not have inflectional morphemes. The other half, however, occur with Norwegian functional material such as determiners and functional suffixes. These

5 Longer sequences of English are already excluded in the basic search opportunities in the corpus.

6 *The roaden* (rushford\_MN\_oigm) has both an English definite article and a Norwegian definite suffix.

constitute the typical mixing pattern of AmNo noun phrases and the main interest in the current article.<sup>7</sup>

In the following presentation of data, orthographic transcriptions are employed. However, in cases of discrepancy between the two layers of transcriptions, the phonological version and the corresponding recording are preferred. To get an idea of the type of data investigated in the current article, some examples of mixed AmNo noun phrases are presented in (1)–(3) below. The English items are highlighted in bold, and the information in parentheses identifies the speaker in CANS. In the transcriptions, pauses are marked with “#” and hesitation with “e”. Notice also that a detailed glossing is only provided for the items that are relevant for this article, namely the mixed noun phrases.<sup>8</sup>

- (1) a. det var # var      ei # nurse      fra e ## E<sub>3</sub><sup>9</sup>      (coon\_valley\_WI\_02gm)  
 it was was      a.INDF.SG.F nurse      from E<sub>3</sub>  
 ‘it was a nurse from E<sub>3</sub>’
- b. nå må du      ha en      **permit**      (westby\_WI\_06gm)  
 now must you      have a.INDF.SG.M      permit  
 og en      **licence**  
 and a.INDF.SG.M      licence  
 ‘now you need a permit and a licence’
- c. og så      er det et      **township**      (fлом\_MN\_01gm)  
 and then      is it a.INDF.SG.N      township  
 ‘and it’s a township’
- (2) a. han skal # lære å leie denne kalven på **fair**-a      (coon\_valley\_WI\_06gm)  
 he shall learn to lead this calf      on fair-DF.SG.F  
 ‘he shall learn to lead this calf at the fair’
- b. de vil ikke      lage noe      med dette      (blair\_WI\_07gm)  
 they will not      make anything      with this.DF.SG.N  
 gaml-e      **stuff**-et  
 old-DF.SG.N      stuff-DF.SG.N  
 ‘they won’t make anything with this old stuff’

7 Notice that 198 of the English nouns lack functional material even though it would be expected in their Norwegian context. Such lack of functional material is also interesting, but beyond the scope of the present article. See, e.g., Riksem (2017) instead.

8 The following annotations are used in the glosses throughout the article: DEF: definiteness, DF: definite, INDF: indefinite, NUM: number, PL: plural, SG: singular, GEN: gender M: masculine, F: feminine, N: neuter, COMP: comparative.

9 “E<sub>3</sub>” represents the name of a place which has been anonymized.

- c. den                    **resort-en**                    som vi hadde                    (stillwater\_MN\_01gm)  
 the.DF.SG.M        resort-DF.SG.M        that we had  
 'the resort that we had'
- d. for mange folk    og # stor-e                    **truck-er**                    (glasgow\_MT\_01gm)  
 too many people and big-INDF.PL.M truck-INDF.PL.M  
 'too many people and big trucks'
- (3) a. å celebrate            **birthday-en**                    hennes                    (coon\_valley\_WI\_06gm)  
 to celebrate        birthday-DF.SG.M        hers  
 'to celebrate her birthday'
- b. vi e satt på            **deck-en**                    hans                    (westby\_WI\_01gm)  
 we sat on            deck-DF.SG.M            his  
 'we sat on his deck'

The overall pattern in (1)–(3) is English nouns incorporated into otherwise Norwegian structures.<sup>10</sup> In (1), English nouns appear with a Norwegian indefinite article, and notice already here that the articles reveal that these nouns have been assigned to different gender categories, despite the fact that English nouns do not have gender. (2) shows cases where English nouns receive a Norwegian suffix in the same order as for Norwegian nouns. (2a) and (2b) have a definite, singular suffix, and also in these cases we see that the suffixes differ depending on the gender.<sup>11</sup> (2c) has an indefinite, plural suffix. Notice also that (2b) and (2c) show more complex DP structures involving a demonstrative and a determiner respectively. These are also Norwegian in structure, even though the noun is English. The data in (3) further show that the mixed noun phrases have a Norwegian word order with a post-nominal possessive, unlike English.

The main objective of the present article is to propose a formal analysis of these and similar mixed noun phrases, which will involve mixing that occurs between words, such as between the determiner and the noun, and also word-internal mixing, such as the cases where an English noun stem occurs with a Norwegian functional suffix. Notice, however, that the question of possessives, as in (3), is not discussed in this article (see Westergaard & Anderssen, 2015 instead).

10 This pattern is applicable also for other domains of the sentence. See, e.g., Grimstad et al. (2014) for discussion of the verbal domain.

11 In the literature, there is a discussion concerning the functional suffix and whether it is a marker for gender or for declension class. I assume it to involve a gender feature.

### 3 Theoretical Background

This section introduces the theoretical foundation of the article, which is an exoskeletal approach to grammar. Before turning to that part, I will briefly discuss the phenomenon of language mixing and two previously suggested ways of approaching it. Both analyses have their advantages and disadvantages, and I will suggest an exoskeletal model as an alternative analysis, capturing the essential insights of both previous analyses.

#### 3.1 *Analyzing Language Mixing*

Following Lohndal (2013: fn. 2), I take language mixing to “describe a situation where a speaker produces linguistic outcomes constituted by a mixture of elements from two or more languages”. The term is related to a range of other terms describing similar phenomena, for instance the commonly used terms “code-switching” and “borrowing”. In the literature, there is a discussion of what identifies and distinguishes these phenomena, concerning the length of the utterance, phonological integration, and frequency, as well as whether the token is borrowed only for the moment or has become a more or less established loan word (see, e.g., Grimstad et al., 2014, and references therein for discussion). A relevant question is, nevertheless, whether it is necessary to adopt such distinctions. In fact, some suggest that code-switching and borrowing could be considered nuances of the same phenomenon, and that borrowed items are in fact established code-switches (e.g., Myers-Scotton, 1993, 2002; Stammers & Deuchar, 2012). For the purpose of this article, I do not formally separate between the two, and I will therefore employ the more general term “language mixing”, basically describing phenomena where items which can be linked to different languages appear together in the same sentence, sometimes even in the same word.

In general, there are two main positions on how to analyze language mixing. The first claims that mixing is a process that requires additional theoretical primitives, whereas the second position argues that mixing should be accounted for by the same principles used to account for monolingual data (a Null theory). Each camp is represented by prominent frameworks, which I will briefly introduce in the following paragraphs.

In her research on language mixing, Myers-Scotton (1993, 2002) finds a persistent asymmetry between the languages involved: One language enjoys the status as the main language or Matrix Language (ML), and is responsible for both word order and providing the inflectional or functional morphemes of the utterance, whereas the other language(s), the Embedded Language(s) (EL), may contribute content items. In other words, while the ML sets the frame for

an utterance, including functional morphemes, the EL is primarily a source of content items. This has been formulated as the *Matrix Language Frame Model* (MLF model) which predicts that in the case of language mixing, the surface morpheme order, as well as all functional morphemes, will be determined by the ML. Only content items may occasionally be drawn from the EL.

The MLF model is empirically convincing. In the AmNo data in (1)–(3), for instance, Norwegian establishes its role as the ML, providing both word order and the relevant determiners and inflectional affixes. English, on the other hand, functions as a source for content items. The same pattern is found in mixing between other language pairs (see, e.g., Myers-Scotton, 1993, 2002; Kamwangamalu, 1997).

A closer look at the MLF model, however, reveals theoretical weaknesses. The main objection to the MLF model is the fact that it is a model designed specifically to deal with language mixing (MacSwan, 2000, 2005; Åfarli, Grimstad, & Subbarao, 2013). In other words, even though the framework is argued to be valid also for monolingual speech, it provides no independent evidence for this claim, reducing its potential of being a general model of grammar. Another complaint concerns the specific reference the model makes to the separate languages involved and the mixing situation itself. MacSwan (2014) argues that specific languages cannot be included as primitives in the analysis as the grammar is formally blind to such distinctions. Instead, mixing is a generalization of the output. The crucial question in this discussion revolves around bilingual competence and whether or not this involves an additional component allowing the speaker to mix the languages that (s)he masters. Among many language mixing researchers, there is a general consensus that one should not develop specialized mechanisms and constraints for mixing (e.g., Mahootian, 1993; Belazi, Rubin, & Toribo, 1994; MacSwan, 1999, 2000, 2005, 2014). The basic argument is that we only have one language faculty and this is responsible for all production, monolingual as well as bilingual.

The second position on how to account for language mixing thus aims to develop a theory and a model that can account for both mixed and un-mixed language production by using the same principles. This is known as a Null theory (Mahootian, 1993) or constraint free approach to language mixing. MacSwan (1999, 2000, 2005, 2014) is a strong advocate for such an approach and proposes an analysis of mixing based on a lexicalist approach within the Minimalist Program. This approach has in turn been criticized for not accommodating the observed asymmetry between the languages involved in language mixing in a convincing way (Jake, Myers-Scotton, & Gross, 2002, 2005). I will not go into the details of the framework proposed by MacSwan, as this is not employed in the current article (see Grimstad, Riksem, Lohndal, & Åfarli, 2018, for a review).

The quest for a Null theory of language mixing, on the other hand, remains, and the task is to come up with a model able to unify the empirical asymmetry observed by Myers-Scotton with the ideal of a Null theory. In this article, I argue that an exoskeletal approach allows precisely that: merging the essential insights from both the MLF model and the Null theory account.

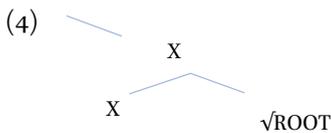
### 3.2 *An Exoskeletal Approach to Grammar*

The model I propose and employ in this article falls within exoskeletal approaches to grammar, which is best described as a family of approaches, also known as generative, neo-constructivist approaches. Such approaches have been developed in different ways by several scholars, e.g., van Hout (1996), Marantz (1997, 2013), Borer (2005a, b, 2013), Åfarli (2007), Ramchand (2008), Lohndal (2012, 2014), and Alexiadou, Anagnostopoulou, & Schäfer (2015). Like any ordinary family, they have somewhat different assumptions and motivations, but all varieties share the same theoretical core, namely the assumption that syntactic structures are to some degree generated independently from the lexical items that realize them. Consequently, the model proposed and employed in the current article will differ in its details from many of the above cited references, but the core assumption remains.

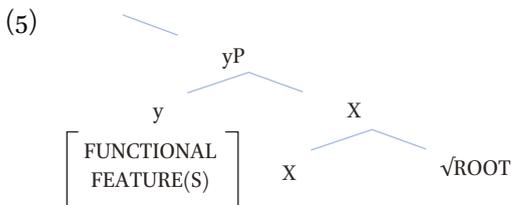
The particular model proposed here is what can be called a late-insertion exoskeletal model, inspired primarily by the work of Borer, Åfarli, Lohndal, and Marantz, as cited above. In such a model, the syntactic structure is assumed to form a skeleton (or template or frame; the name is not crucial) which determines the morphosyntactic information of the phrase. Lexical items, on the other hand, are inserted late into designated positions in the structure. Importantly, this approach and related models are motivated based on monolingual data, and assumptions are not designed specially to deal with language mixing. Moreover, the model also implements certain important insights from Distributed Morphology (DM) (see, e.g., Harley & Noyer, 1999; Alexiadou, 2001; Embick & Noyer, 2007). In DM, the content of the lexicon is distributed across three separate lists: one for syntactic terminals, one for vocabulary items, and one for encyclopedic information. These are accessed at different points throughout the derivation, limiting the information that is available at a given point. This mirrors the core assumptions of exoskeletal approaches: In the first stage of the derivation, an abstract, syntactic skeleton is generated, whereas lexical items are accessed at a later, second stage.<sup>12</sup>

12 The third stage, encountering encyclopedic information, will not be addressed in this article.

The abstract syntactic skeleton that is generated in stage one is assumed to have two types of terminals: roots and functional features or feature bundles. In the literature, there is an ongoing discussion on the nature of roots (see, e.g., Harley, 2014 and other articles in the same special issue). Following Arad (2005), I assume that roots are atomic elements of the syntactic structure, devoid of all grammatical features as well as underspecified for semantics and phonology. This entails that roots have core semantics, but are not specified for word class, which instead will arise from roots being structurally combined with a category defining head, or categorizer (Marantz, 1997; Arad, 2005; Pylkkänen, 2008; Embick & Marantz, 2008). Consequently, one root may surface as different categories depending on the syntactic context. For instance, the verb *braid* and the noun *braid* are considered exponents of the same root  $\sqrt{\text{BRAID}}$ , but combined with different category defining heads. Structurally, this is displayed in (4) where the categorizer  $x$  and the root combine and form the stem  $x$  (see Alexiadou & Lohndal 2017) for a discussion of the structural configuration).



The second type of syntactic terminal comprises functional features or feature bundles, holding the relevant syntactic features. This is illustrated in (5), where (4) is expanded with a functional projection,  $yP$ .



The content of the functional feature bundle will vary according to the overall phrase it is included in, as well as according to language. For instance, the features of a noun phrase will differ from those of a verb phrase, and the features of noun phrases will vary across languages. A general assumption is that the language faculty makes available a full set of features from which a particular grammar can be made by activating a selection (Adger, 2003). A particular language is thus characterized by the combination of features that are activated and how they are combined in bundles. A Norwegian noun phrase, for

instance, typically involves the features definiteness, number, and gender, which helps us separate it from languages not involving the same feature composition. Basically, this means that structures and features themselves are not language specific, but a given selection may be. Referring to something as a “Norwegian structure” thus only means that the structure holds features and feature bundles typically associated with Norwegian.

The next stage in the derivation is Spell-Out, the process of inserting vocabulary items, or phonological exponents, into the syntactic terminals. Inserting exponents into terminals housing functional features or feature bundles is a process regulated by the *Subset Principle*:<sup>13</sup>

The phonological exponent of a Vocabulary item is inserted into a morpheme in the terminal string if the item matches all or a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary item contains features not present in the morpheme. Where several Vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen. (Halle, 1997: 428)

By this principle, insertion of functional material is competitive. In the vocabulary, the language user will have a wide repertoire of functional exponents, each paired with a set of conditions for insertion. In the insertion process, the functional exponent matching the greatest number of features specified in the structure must be chosen. To illustrate, let us consider the Norwegian indefinite articles, where the speaker has three possible exponents:<sup>14</sup>

- (6) [INDF, SG, M] ↔ **en**  
 [INDF, SG, F] ↔ **ei**  
 [INDF, SG, N] ↔ **et**

The composition of the feature bundle in the structure will determine the insertion of an exponent. The exponents in (6) share the features indefinite and singular, but when the structure is specified for masculine gender, *en* is inserted, whereas *ei* and *et* are inserted in feminine or neuter cases respectively (see also Harley & Noyer, 1999 for discussion and additional examples). Notice that being the *best* match does not necessarily mean having a

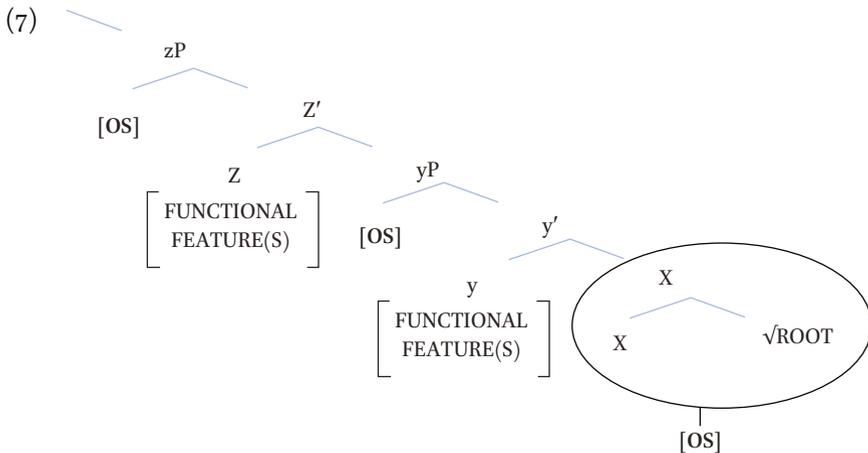
13 Terminals holding functional features or feature bundles are known as *morphemes* in the DM literature.

14 These are the standardized exponents of *Bokmål*. *Nynorsk* and many dialects, in Norwegian as well as in AmNo, will provide different alternatives.

*complete* match of the features in a bundle, and in addition that insertion is blocked if the exponent is specified for features not present in the structure.

In contrast to Spell-Out of functional terminals, Spell-Out of the stem, i.e., the root and the categorizer, is radically less restrictive. According to Arad (2005), and scholars following her, a root alone is unavailable for Spell-Out, meaning that a root only can be realized by an exponent in combination with the categorizer. Since the resulting stems do not involve complex functional feature bundles,<sup>15</sup> the possible realizations are more numerous; insertion is not limited by feature matching requirements. I thus assume that these positions, as well as adjuncts and specifiers, constitute what I will call “open slots” in the structure. Into these positions, content items from any language are easily inserted. The term “open” must, however, be used with some reservations, since these positions may involve certain restrictions too (see, e.g., Åfarli & Subbarao, Forthcoming).

In practice, this means that the language user may insert elements from any available lexicon into the open slots, whereas Spell-Out of functional features is strictly regulated by the Subset Principle. The representation of a larger piece of structure is given in (7), where functional heads contain functional features or feature bundles, whereas specifiers, adjuncts, and the stem position constitute open slots [OS]. In this article, I focus on the (nominal) stem position and the associated functional projections.



15 Some will argue that a category is also a grammatical feature (e.g., Adger, 2003), but for the present article, this has no decisive consequences, as the major categories, among them nouns, are known in most languages.

In Section 5, I discuss how the distinction between the two types of syntactic terminals and the process of inserting vocabulary items into them can account for the typical mixing patterns in AmNo noun phrases. Before turning to that discussion, I will suggest a syntactic structure for AmNo noun phrases.

#### 4 The Structure of American Norwegian Noun Phrases

In this section, I formulate an exoskeletal model for the nominal domain that can be used to analyze AmNo mixed noun phrases. This builds on previous research on Norwegian noun phrases, primarily Julien (2005), as well as what the AmNo data can tell us.

Before going into details of the model, notice that there are already a number of studies of language mixing within the nominal domain in the literature, including Jake, Myers-Scotton, and Gross (2002); Herring, Deuchar, Parafita Couto, and Moro Quintanilla (2010); Moro Quintanilla (2014); and Parafita Couto, Munarriz, Epelde, Deuchard, and Oyharçabal (2015). These studies discuss mixing between many different language pairs, although none involving Norwegian, as well as different problems that may arise in mixing the different languages within a noun phrase. However, these papers adopt a rather different theoretical framework than the present article, and for reasons of space, it is not possible to compare frameworks here.

Returning to the case of AmNo, the word order, as well as most of the functional and lexical items, are recognized as Norwegian. This establishes Norwegian as the main language, providing the syntactic skeleton and the relevant functional features. Julien (2005) has conducted a thorough investigation of the Norwegian noun phrase, and concludes that its maximal expansion includes prenominal determiners, weak quantifiers and/or adjectives, possessive pronouns that can be either pre- or post-nominal, and finally post-nominal PPs. The noun itself is inflected for definiteness, number, and gender, realized as a functional suffix in all cases except indefinite singulars. The potential of Norwegian noun phrases is illustrated in a simplified version in (8), showing a case where the possessive surfaces post-nominally.

(8) [Determiner [weak quantifier [adjective [noun [possessive [PP ]]]]]]

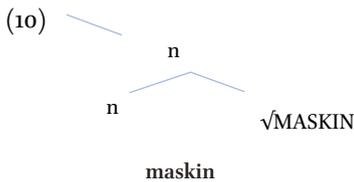
The model I propose and employ is anchored in Julien's work, with additional developments of the framework. I will not go into possessives or PPs in this article, and therefore I focus on somewhat less complex phrases such as (9).

- (9) den                    gaml-e                    maskin-a<sup>16</sup>                    (fargo\_ND\_01gm)  
 the.DF.SG.F    old-DF.SG.F    machine-DF.SG.F  
 ‘the old machine’

The model can be said to consist of three layers: i) the root and the nominalizer, ii) the functional features, and iii) the higher structure. I will discuss these separately in the following paragraphs.

#### 4.1 *The root and the nominalizer*

At the bottom of the structure, a root combines with a category defining head, as in (4) above, and more specifically in this case the root combines with a nominalizer, *n*. This structural combination forms the nominal stem, in (10), which is then spelled out by the exponent *maskin*. Note that in this and in subsequent examples, I have included the exponent in the presentation as well as the abstract categories. The exponent is written in bold.



In the case of language mixing in AmNo noun phrases, there are two options concerning the units of mixing, i.e. the items drawn from a different language than of the structural frame. Either the stem (root + categorizer) is being mixed, or the root itself. Space prevents a full discussion of this important issue, but in what follows, I briefly present two arguments in favor of stems being mixed.

The first argument is taken from the verbal domain. In general, mixing in the verbal domain follows the same pattern as mixing in the nominal domain. For instance, in AmNo English items occur with Norwegian inflectional suffixes. However, studies by Türker (2000) and Åfarli and Jin (2014) show that when Norwegian verbal content items are mixed into Turkish and Mandarin Chinese structures respectively, it is not a bare form that is used, but the Norwegian

16 The standardized transcription of this particular utterance is “den gamle maskinen” with the masculine definite suffix *-en*. The phonological transcriptions, however, disclose the feminine definite suffix *-a*.

infinitival forms, including the suffix *-e*. This suggests that also the categorizer is drawn from Norwegian in these cases, and that the mixed element is already categorized as a verb.

A second related argument builds on the conceptual meaning of the mixed pieces. Consider the noun *chair*, meaning the chairperson at an event. This noun is commonly mixed into Norwegian, and when it is, it also brings with it that particular, conceptual meaning. Recall that roots are considered to be without any grammatical features or phonological information, and that they also lack any semantic interpretation except some fundamental core (Arad, 2005). It then appears unlikely that the root *chair* still carries such a specific, conceptual content, and instead, I assume that this is something that arises in the combination with a categorizer (see also Grimstad et al., 2014).

#### 4.2 *The Functional Features*

Norwegian nouns are inflected for definiteness, number, and gender. Definiteness and number constitute individual functional projections in Julien's (2005) analysis, whereas gender is analyzed as a property of the nominal stem, introduced by the nominalizer. However, mixing data also shed light on the question of gender. I will consider two broad alternatives for analyzing gender in order to motivate the next layer in the DP structure (Riksem, 2015).

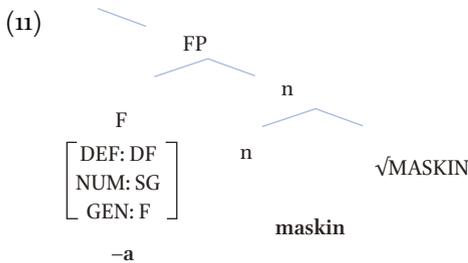
The first alternative is to analyze gender as an inherent property of the root itself or of the nominal stem. Analyzing gender as a property of the root is theoretically dismissed in an exoskeletal framework, where the root is devoid of grammatical features. Additionally, considering that a given root can become a noun, a verb, or an adjective depending on the categorizing head it is combined with, it is unexpected that only nouns have gender, if this was in fact a property of the root. Another possibility is therefore to analyze gender as a feature of the categorizer *n* (see, e.g., Alexiadou, 2004, 2011; Kramer, 2014). This makes gender a property of the nominal stem, and the assignment is described as an essential part of turning a root into a noun. In her analysis, Kramer (2014) proposes that *n* has a gender feature with different values depending on whether it is natural gender or grammatical gender, and that licensing conditions will determine which root can be combined with which *n*. However, Kramer's analysis is based on a language that relies heavily on natural gender, Amharic, but as the Norwegian gender system is basically grammatical and arbitrarily assigned, it is not clear how easily the analysis would transfer to the present data.

More importantly, the mixing data from AmNo provide empirical counterarguments to such analyses. Despite their usual lack of gender, English noun

stems mixed into Norwegian structures, are assigned a gender category, expressed on functional suffixes and associated words. The data further show a distribution of English stems across the three genders in Norwegian, which opposes a possible default assignment. How would this be possible if the assignment of gender were to depend on the English stem? Instead, it follows that gender in AmNo cannot be a feature of neither the root nor the categorizer, but must be found somewhere in the functional structure of the noun phrase.

The second alternative to analyzing gender is then precisely that gender must be located somewhere above the n complex. Possible analyses are, for instance, that gender is a head in its own functional projection (Picallo, 1991, 2008; Nygård & Åfarli, 2015) or a feature of another functional projection (Ritter, 1993).<sup>17</sup>

Data presented here, however, does not clearly reveal the fine-grained structure and the exact locus of gender. Neither are such details relevant for the purpose of this article. Norwegian functional suffixes may be internally complex, but for the current analysis it is sufficient to note that the English stems occur with Norwegian functional suffixes and associated words signaling the features definiteness, number, and gender as a complex. Hence, I propose a common functional projection, named FP (for “functional projection”), housing a bundle of all three features. The next layer of the structure will then be like the one in (11).

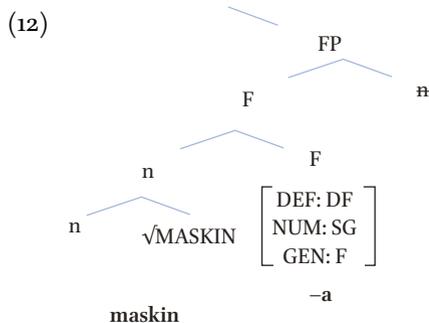


Each feature in the feature bundle in F has a set of possible values in Norwegian: Definiteness can be definite or indefinite, number can be singular or plural, and gender can be masculine, feminine, or neuter. The interplay between these three features sets the requirements for Spell-Out, and the most suitable exponent is inserted, cf. the Subset Principle. A necessary assumption

17 A related question which then arises concerns how a noun is assigned a specific gender if not being a quality of the individual root or stem. This is discussed under 5.1.

in such analyses is that the functional exponents of these terminals express what features can be found in that specific head. In the case of (11), knowing that *-a* is the Norwegian exponent for definite, singular, and feminine, is the base for assuming the presence of these specific feature values in the structure. In Spell-Out of such a feature bundle, Norwegian exponents offer a more precise match than the English alternative, being specified for all three features in the bundle. This is why functional exponents are generally picked from the same language as the one providing the structural skeleton, regardless of the stem.

The exponent of F in Norwegian is furthermore suffixed to the noun stem. This suggests that the stem moves to F, a movement that is considered obligatory in Norwegian noun phrases (Julien, 2005). Without going into an elaborate discussion, I assume that this is triggered by another feature of F, which is also in line with Julien's framework, and I also assume that this is a case of head movement (Travis, 1984; Roberts, 2010), where *n* moves to F and combines with the functional suffix. The next stage of the derivation is then displayed in (12).



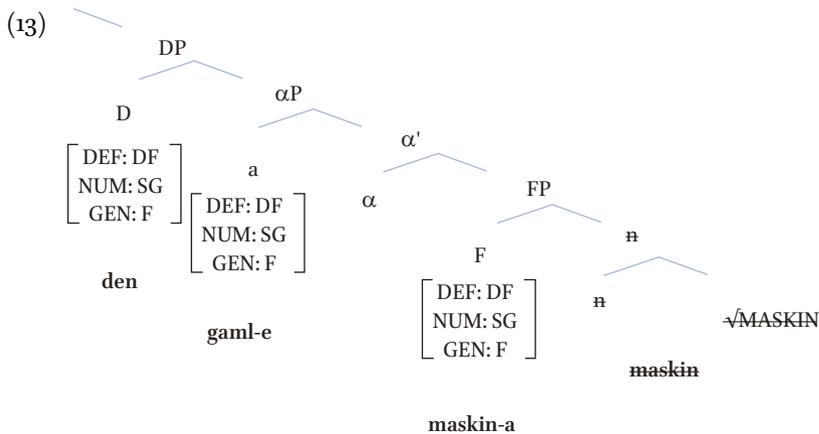
As shown in (12), the internal structure of F is now more complex. In subsequent structures, however, I will simplify this presentation by placing both exponents, for the stem and for F, together under F.

### 4.3 *The Higher Structure*

Following Julien (2005), I assume that the higher structure contains the projections  $\alpha$ P, CardP and DP.  $\alpha$ P and CardP are both optional projections present in cases with adjectives or weak quantifiers (such as *mange* 'many' or various numerals). More specifically, Julien argues that adjectives and weak quantifiers constitute separate phrases and that these are generated in the specifier position of  $\alpha$ P and CardP respectively. On top of the structure is the DP layer.<sup>18</sup> The head of this projection, as well as possible heads in spec- $\alpha$ P and spec-CardP are

generated with a bundle of unvalued features corresponding to those found in F, and these are valued through a probe–goal relation (Chomsky, 2000; Adger, 2003). In order to make the phrase referential, the Norwegian DP projection must also be made visible by overt material in either D or spec-DP. This requirement is met by moving the FP complex to spec-DP, or by inserting a separate determiner or demonstrative in D (Julien, 2005).

The complete structure of the noun phrase in (9) is presented in (13) below. In this structure, the features in D and spec- $\alpha P^{19}$  have already been valued and the appropriate exponents are inserted.



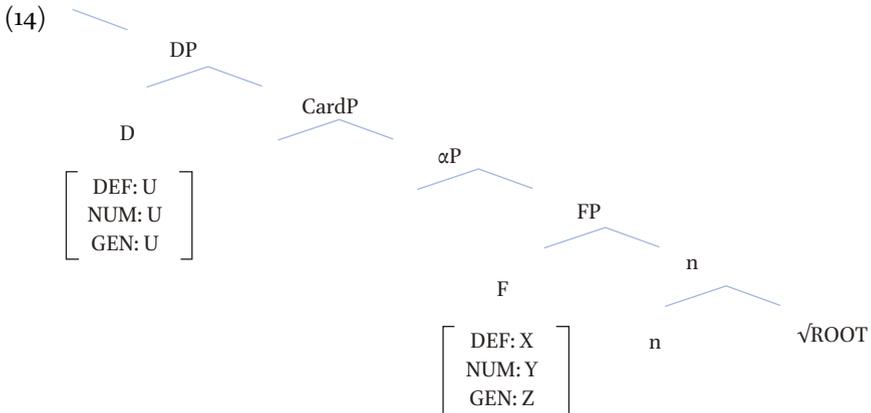
The structure in (13) also shows the phenomenon double definiteness, i.e. the co-occurrence of a definite determiner and a definite suffix. This term is typically reserved for phrases just like (13), involving a modifying adjective or a weak quantifier. These categories will be generated in the specifier position of  $\alpha P$  or CardP, which will prevent FP from moving past it, and this requires that some other overt material is inserted into D or spec-D in order to make the phrase referential. The result is that definiteness is spelled out both in F and in D (Julien, 2005). As will be obvious as we go into the analyses, also noun phrases without such an adjective or weak quantifier may have a similar output, with the double marking of definiteness.

18 In addition, Julien (2005) argues that there are additional projections for strong quantifiers and demonstratives. As such subdivisions are not crucial for this article I will simply analyze both determiners and demonstratives as exponents of D.

19 Adjectives are discussed in some more detail in 5.4.

## 5 Analysis

In this section, I will employ the exoskeletal model suggested in the previous section to analyze a selection of mixed AmNo noun phrases in CANS. The structural starting point for all of these phrases is displayed in (14).



For each unique phrase, the features in F will be specified for the relevant values. The features in D are generated as unvalued and get their valuation through a probe–goal relation with F. When the phrase also contains an adjective or a weak quantifier, similar unvalued feature bundles will be generated in the specifier position of  $\alpha$ P or CardP respectively. In the second stage, the relevant phonological exponents are inserted into the syntactic terminals. The Subset Principle will regulate the exponents of the functional feature bundles, which in the AmNo cases will be chosen from the Norwegian pool of functional exponents, due to the feature matching requirements. The stem, on the other hand, is generated without such features and thus constitute an open slot in the structure. As long as it has nominal specifications, content items from any language may easily be inserted into this position. In the following subsections, I discuss different typical mixing patterns in the AmNo material.

### 5.1 *English Stem with Norwegian Indefinite Article*

The first type of data I will address, is a frequent and typical mixing pattern in AmNo noun phrases, namely indefinite singulars, where an English

noun stem occurs with a Norwegian article. A handful of examples is given in (15).

- |      |    |  |                               |                       |
|------|----|--|-------------------------------|-----------------------|
| (15) | a. | <i>en</i><br>a.INDF.SG.M<br>'a permit'     | <b>permit</b><br>permit       | (westby_WI_o6gm)      |
|      | b. | <i>en</i><br>a.INDF.SG.M<br>'a licence'    | <b>licence</b><br>licence     | (westby_WI_o6gm)      |
|      | c. | <i>en</i><br>a.INDF.SG.M<br>'a chainsaw'   | <b>chainsaw</b><br>chainsaw   | (blair_WI_o7gm)       |
|      | d. | <i>en</i><br>a.INDF.SG.M<br>'a screen'     | <b>screen</b><br>screen       | (westby_WI_o6gm)      |
|      | e. | <i>en</i><br>a.INDF.SG.M<br>'an apartment' | <b>apartment</b><br>apartment | (chicago_IL_o1gk)     |
|      | f. | <i>ei</i> #<br>a.INDF.SG.F<br>'a nurse'    | <b>nurse</b><br>nurse         | (coon_valley_WI_o2gm) |
|      | g. | <i>et</i><br>a.INDF.SG.N<br>'a crew'       | <b>crew</b><br>crew           | (westby_WI_o3gk)      |
|      | h. | <i>et</i><br>a.INDF.SG.N<br>'a township'   | <b>township</b><br>township   | (fлом_MN_o1gm)        |
|      | i. | <i>et</i><br>a.INDF.SG.N<br>'a title'      | <b>title</b><br>title         | (stillwater_MN_o1gm)  |

A first thing to notice in (15) is that these mixed phrases occur with three different indefinite articles, *en* (M), *ei* (F), and *et* (N), which tells us that they are assigned to the three different gender categories in Norwegian. The most frequently-occurring gender of Norwegian is masculine (Lohndal & Westergaard, 2016). This is apparent also among the English stems in CANS investigated in the current article; most English stems are assigned masculine gender.

However, a notable number of feminine and neuter indefinite articles are also found with English noun stems. This is a clear indication that gender assignment in the mixed phrases cannot be a mere default mechanism.

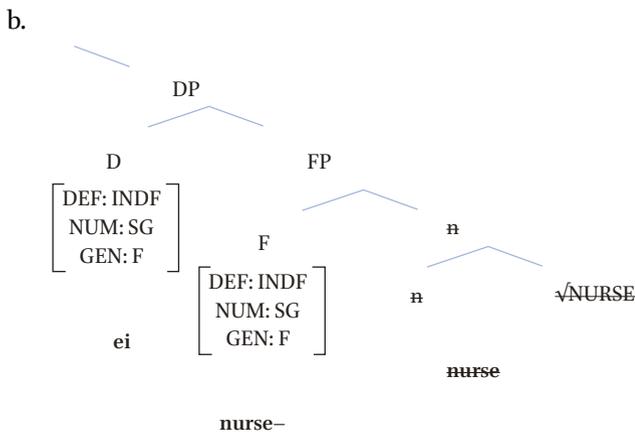
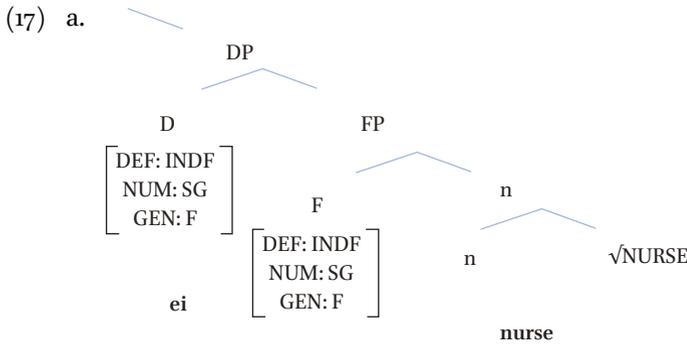
These data then support the analysis discussed in Section 4, that gender is part of the structural representation of the noun phrase. If gender were truly an inherent quality of the stem, the observed pattern would be difficult to explain, as English stems could not be expected to provide a gender feature, covering three different values, when this is an alien category to English nouns. One possible analysis of this suggests that when a speaker mixes languages as in (15), the speaker has established two entries for each noun in the lexicon: one without gender, which is the English version, and one which has been assigned a gender feature, forming the Norwegian version. This, however, emerges as an uneconomical analysis, having two entries for an item with exactly the same meaning. An analysis where gender is structurally assigned is thus more convincing.

An immediate question is then how gender in these cases is established. In this question, I follow Nygård and Åfarli (2015), considering it a process of *feature construal*, where conceptual properties of the stem will materialize as grammatical properties in the structure. This is also discussed a bit further in Section 6. Other possible strategies for assigning gender may be that it is based on the phonology of the stem and ease of pronunciation, or on analogy with the gender of the corresponding stem from the other language. While the former is plausible, the latter does not coincide with the AmNo data. Some counter examples are:

(16)	Norwegian	American Norwegian	English
a.	kor-et.N	choir-en.M	the choir
b.	ferg-a.F	ferry-en.M	the ferry
c.	en.M tittel	et.N title	a title

These discrepancies between the gender assigned mixed stems in AmNo and the gender of the corresponding Norwegian stem indicates that gender assignment in language mixing is not simply a translation from the one language to the other.

Let us now consider the phrase in (15f) *ei nurse*. The structural analysis of this phrase after the valuation of D is shown in (17) where (17a) shows the structure prior to movement, and (17b) shows the structure after the stem has moved to F. Again, the exponents are included and boldfaced.



The English stem exponent *nurse* is here incorporated into a Norwegian structure and appears with a Norwegian indefinite article. The stem, in the complement position of F, constitutes an open slot in the structure, allowing the insertion of the English exponent. The higher levels of the phrase, on the other hand, contain features typically associated with Norwegian. FP is the first of the structural projections above n, and in this particular example the feature bundle holds the features indefinite, singular, and feminine, which strictly restricts the insertion of an exponent. The Norwegian pool of functional exponents will in (17) and similar cases provide a better match, and thus be inserted, since they correspond to all three features in the bundle, unlike the English alternatives.

Indefinite singulars in Norwegian do not have an overt exponent of F, and F is thus not overtly realized. This leaves the indefinite article as the main

indicator of the specific feature values in the phrase, since the features in D have been valued by the features in F. Knowing that the Norwegian indefinite article *ei* is indefinite, singular, and feminine, is thus the base for assuming the presence of such features in F and subsequently in D. In (17b) the stem has completed the obligatory movement to F, something that will be more apparent in cases with an overt exponent in F. The indefinite article *ei* is inserted into D.<sup>20</sup>

The rest of the data in (15) will have a similar structure as (17) only varying according to gender. Neither will have an overt exponent in F, but the difference will manifest itself in the realization of the indefinite article in D.

### 5.2 *English Stem with Norwegian Suffix*

(18) shows another typical mixing pattern in AmNo noun phrases: an English stem receiving a Norwegian functional suffix. The data in (18) are definite singulars, and by looking at the different suffixes assigned, *-en* (M), *-a* (F), and *-et* (N), we also see variation according to gender.

- (18) a. **road-en** (webster\_SD\_02gm)  
road-DF.SG.M  
'the road'
- b. **choir-en** (coon\_valley\_WI\_07gk)  
choir-DF.SG.M  
'the choir'
- c. **ferry-en** (harmony\_MN\_04gm)  
ferry-DF.SG.M  
'the ferry'
- d. **fair-a** (coon\_valley\_WI\_06gm)  
fair-DF.SG.F  
'the fair'
- e. **bluff-a**<sup>21</sup> (westby\_WI\_01gm)  
bluff-DF.SG.F  
'the bluff'
- f. **stuff-et** (blair\_WI\_07gm)  
stuff-DF.SG.N  
'the stuff'

20 Julien (2005) argues that the indefinite article originates in a WQP in spec-CardP and then moves to the DP domain to provide it with overt material. For the purpose of this article, I simplify this analysis by inserting the indefinite article into D.

21 This noun is also found once with masculine gender: *en bluff* (westby\_WI\_06gm).



the movement within the phrase. First the stem moves to F to receive the suffix, yielding the complex form *roaden*. Thereafter, in order to supply the DP domain with overt material, FP moves to spec-DP (as discussed in Julien, 2005, although with different labels).

So far, only noun phrases in singular have been addressed. When it comes to plural phrases, both the indefinite and the definite ones will have the functional exponent realized as a suffix. Some examples are given in (20).

- (20) a. **truck-er** (glasgow\_MT\_01gm)  
 truck-INDF.PL.M  
 'trucks'
- b. **farmer-a**<sup>22</sup> (wanamingo\_MN\_04gk)  
 farmer-INDF.PL.M  
 'farmers'
- c. **sportsgam[e]-an**<sup>23</sup> (westby\_WI\_02gm)  
 sportsgame-DF.PL.M  
 'the sports games'
- d. **tobakkshed-a** (coon\_valley\_WI\_06gm)  
 tobacco shed-DF.PL.N  
 'the tobacco sheds'

These examples follow the same pattern as the previous examples of English stem exponents being incorporated into the open slots of a structure holding Norwegian functional feature bundles and consequently being assigned Norwegian functional material. Norwegian plural suffixes also vary according to gender. In (20), three out of four examples are masculine, though realized with different functional exponents requiring an additional comment. A feature bundle in F consisting of indefinite, plural, and masculine is typically realized by the suffix *-er*, as is the case in (20a). This is true for the written standard *Bokmål*, into which the utterance is transcribed, and for many dialects. In *Bokmål* and in these dialects, this is also the same exponent as for the feminine counterpart, making the exact determination of the gender in (20a) somewhat more challenging. Due to the default status of masculine gender, I assume that this example is masculine. Several other Norwegian dialects as well as the second written standard, *Nynorsk*, however, differentiate more distinctly between genders in the plural suffixes by using *-ar* or *-ane* for indefinite, masculine and definite, masculine respectively, in contrast to *-er* and *-ene* for

22 This specific suffix appears in the phonological transcription.

23 This specific suffix appears in the phonological transcription.

the feminine cases. The examples in (20b) and (20c) can thus more reliably be analyzed as masculine, as the suffixes we see here are such variations of masculine suffixes.

The compound in (20d) *tobakksheda* comprises a Norwegian item, *tobakk* ‘tobacco’, and an English one, *shed*. This example is definite and neuter, which is typically realized by the suffix *-a* in Norwegian. Notice that indefinite neuter plurals are difficult to attest in the corpus. These do not have an overt suffix in Norwegian, making it hard to separate them from potential bare forms. Because of this, I will not discuss these in the current article.

The bottom line is nevertheless that also plural phrases follow the expected pattern. The only difference is the composition of the feature bundle in the structure, which will consequently require the insertion of a different exponent.

### 5.3 *English Stem with a Norwegian Determiner or Demonstrative*

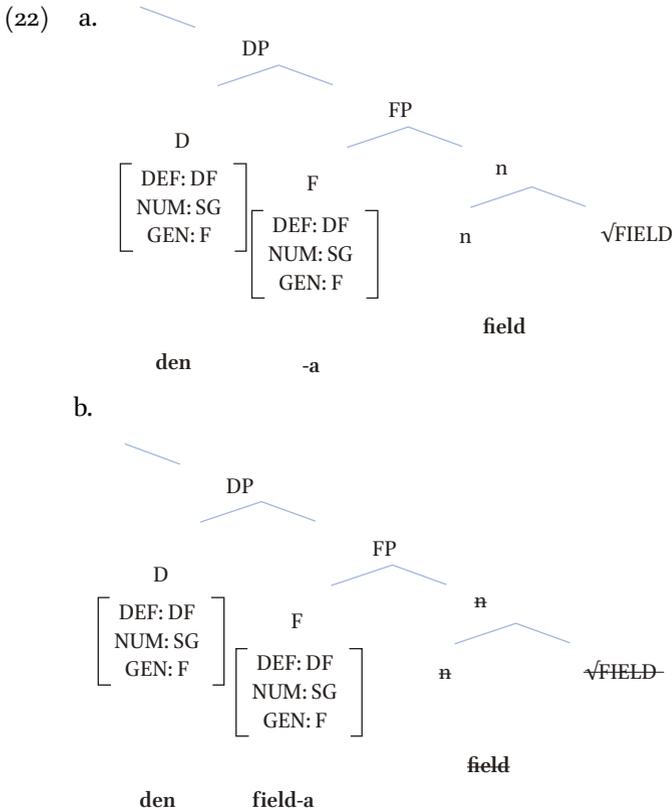
In cases where the FP complex does not move to the DP domain, as it does in (19b), the phrase needs some other overt material in D or spec-DP in order to be referential. This is typically done by inserting a determiner or a demonstrative in D, which is what the data in (21) show. The outcome is then that definiteness is expressed both by the determiner or the demonstrative and by the functional suffix, the phenomenon referred to as double definiteness.

- (21) a. den                      **track-en**                      (westby\_WI\_02gm)  
           that.DF.SG.M        track-DF.SG.M  
           ‘that track’
- b. den                      **resort-en**                      (stillwater\_MN\_01gm)  
           that.DF.SG.M        resort-DF.SG.M  
           ‘that resort’
- c. den        e              **field-a**<sup>24</sup>                      (coon\_valley\_WI\_02gm)  
           that.DF.SG.F        field-DF.SG.F  
           ‘that field’
- d. det                      **pastur[e]-et**<sup>25</sup>                      (coon\_valley\_WI\_03gm)  
           that.DF.SG.N        pasture-DF.SG.N  
           ‘that pasture’

24 This noun is also found once with neuter gender: *field-et* (rushford\_MN\_01gm), and recall that “e” only is the transcription of hesitation.

25 The context of this phrase suggests another possible analysis, namely that *det* is a formal subject, and that *pasturet* is an elaboration of this, but the context does not provide sufficient information in order to settle this question. However, constructions like the one suggested in (21d) are very frequent in Norwegian, making it a highly plausible analysis.

The examples in (21) are all singular, but with different genders. (21d) shows the most obvious gender attributes, visible on both the demonstrative *det* and the suffix *-et*. In (21a–c), on the other hand, all three examples have the exponent *den*, which is the common demonstrative for masculine and feminine. The gender distinction in these cases is rather detected on the suffix, parallel to the examples in (18) above. The structure of (21c) *den fielda* is displayed in (22).



(22a) shows the structure after the features in D have been valued, but before any movement has taken place. In the same way as in earlier examples, the English stem exponent *field* is inserted into the open slot of the structure. The two feature bundles in the structure are realized by exponents matching the most features, which, due to the features given, is a Norwegian functional exponent specified for all of the three relevant features. (22b) shows that the stem moves to F where the functional exponent is suffixed to it, but instead of

moving further, as in (19b), the stem remains under F and D is spelled out by a separate demonstrative.

#### 5.4 *Noun Phrases with an Attributive Adjective*

More complex noun phrases, like those involving an adjective, also follow the expected pattern from the proposed exoskeletal model. Again, an English stem exponent is incorporated into a Norwegian structure, but this does not affect the remaining parts of the structure. Now, however, there will be an additional position, spec- $\alpha$ P, for the adjectival stem. These positions may be internally complex, but at least, I assume that also adjectival stems are formed by the structural combination of a root and a categorizer.

In a Norwegian structure, the adjectival position is generated with a bundle of unvalued features corresponding to those in F. These are valued throughout the derivation, and realized by corresponding functional exponents. Before I move on to the data, a short introduction to the Norwegian adjectival inflection is in order. This category is split into a strong and a weak inflection. The weak inflection has only one form *-e* and is realized whenever the phrase is definite. The strong inflection, on the other hand, is realized in indefinite phrases, and is sensitive to gender and number. This gives us the following repertoire of exponents:

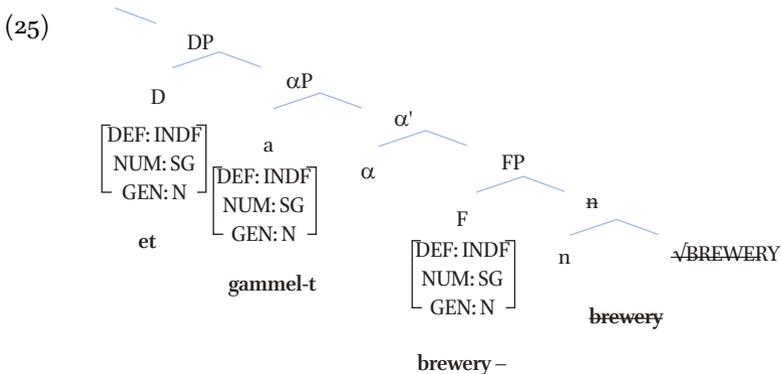
(23)	Strong adjectival inflection		
	[INDF, SG, M/F]	↔	-
	[INDF, SG, N]	↔	-t
	[INDF, PL]	↔	-e
	Weak adjectival inflection		
	[DF]	↔	-e

As the data in (24) show, this pattern is maintained even in the mixed phrases.

(24)	a.	en	rik	farmer	(flom_MN_02gm)
		a.INDF.SG.M	rich.INDF.SG.M	farmer	
		'a rich farmer'			
	b.	en	stor	hook	(harmony_MN_02gk)
		a.INDF.SG.M	big.INDF.SG.M	hook	
		'a big hook'			
	c.	ei	pussig	his- s- # story	(flom_MN_01gm)
		a.INDF.SG.F	odd.INDF.SG.F	history	
		'an odd history'			

- d. et                    gammel-t            **brewery**            (flom\_MN\_o1gm)  
 a.INDF.SG.N    old-INDF.SG.N    brewery  
 ‘an old brewery’
- e. denne            digr-e            **chopper-en**<sup>26</sup>    (blair\_WI\_o1gm)  
 this.DF.SG.M    huge-DF.SG.M    chopper-DF.SG.M  
 ‘this huge chopper’
- f. den                best-e            aurecreek-en<sup>27</sup>    (coon\_valley\_WI\_o6gm)  
 the.DF.SG.M    best-DF.SG.M    trout creek-DF.SG.M  
 ‘the best trout creek’

The structure of (24d) *et gammelt brewery* is presented in (25), and following Julien (2005), the adjective is generated in the specifier position of the functional phrase  $\alpha$ P. Notice that a fully detailed structure for this position is not presented here, as this is not the main objective of this article. The important fact is that the adjective, or rather an accompanying functional projection, is generated with a bundle of unvalued features which are valued by the corresponding features in F. Hence, the composition of features in F has consequences also for the inflection of the adjective and ensures agreement across the noun phrase.

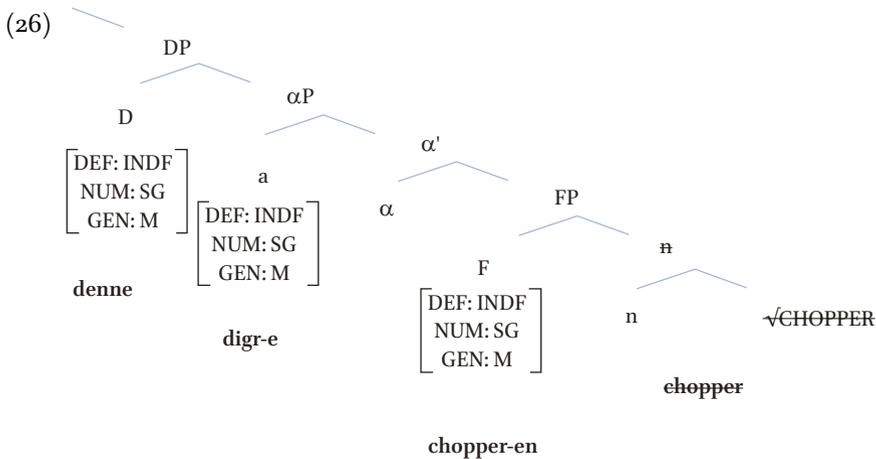


26 The complete phrase is *denne digre traktoren og chopperen* ‘this huge tractor and chopper’, but since the conjunction does not matter for the analysis, the former part is not included.

27 This is another compound consisting of a Norwegian item, *aure* ‘trout’, and an English one, *creek*, meaning that this is a place to go trout fishing.

In the case of (25), the adjective has the suffix *-t* (strong inflection) which is the exponent for indefinite, singular, neuter in this position. Apart from the presence of the adjective, the analysis in (25) is parallel to the one in (17) above. The English exponent *brewery* is first inserted into the open slot and then moved to F. F does not have an overt exponent in indefinite, singular phrases, and D is spelled out by the appropriate indefinite article.

The structure in (26) shows another example involving an adjective, namely (24e) *denne digre chopperen*. In this case, the phrase is definite, which triggers the weak adjectival inflection in Norwegian, realized by the exponent *-e*.



In the lower part, (26) is parallel to (19). Again we see an English stem exponent being inserted into the open slot in a structure, and Norwegian exponents are inserted into the functional feature bundles as they are the best matches for the features in question. The stem is moved to F and is connected to the suffix. This is the only possible movement in (26), since the adjective in spec- $\alpha$ P prevents FP from moving to spec-DP. D is then spelled out by a separate demonstrative, *denne*.

Mixing in the more complex structures, as those involving adjectives, adds extra evidence to the assumption that the noun stem, or its exponent, does not affect the feature composition or realization of the higher functional structure. To emphasize the pattern of English stem exponents being incorporated into otherwise Norwegian structures in AmNo, notice that English items may appear as adjectives in AmNo, as the data in (27) show. Also in these cases the inflectional morphology is provided by Norwegian.

- (27) a. det er ikke noen **small-e** farm-er (westby\_wi\_06gm)  
 it is not any small-INDF.PL.M farm-INDF.PL.M  
 noe mer  
 any more  
 'there isn't any small farms anymore'
- b. det ble **easy-ere** om ei stund (webster\_sd\_02gm)  
 it became easy-COMP in a while  
 'it got easier after a while'

### 5.5 *Interim Summary and Conclusion*

In this section, the exoskeletal model developed in Section 4 has been tested against a variety of AmNo noun phrases. The model incorporates some core assumptions in an exoskeletal approach, namely i) that abstract, syntactic structures are generated independently from the items that realize them, ii) that this structure has two types of terminals, functional features or feature bundles and open slots consisting of a root together with a categorizer, and finally iii) that insertion into the functional terminals is regulated by the Subset Principle, whereas insertion into the open slots is less restricted, allowing a wide range of realizations. Importantly, the model does not employ any mechanisms especially for language mixing, which comply with the ideal of a Null theory.

The asymmetry in the observed data is predicted by the model: Content items from any available language are easily inserted into open slots in the structure. Functional items, on the other hand, are typically drawn from the language of the structure, as these are tailor-made to spell out specific functional features or feature bundles. These predictions are borne out in the typical mixing pattern of AmNo noun phrases. However, in the next section I will consider exceptional AmNo data that require further discussion.

## 6 The Plural -s

There is one particular English functional exponent that is found in the AmNo material, and that is the English plural -s. Some examples are given in (28).

- (28) a. det er for mange # lawyers (sunburg\_mn\_03gm)  
 it is too many # lawyers  
 'there are too many lawyers'

- b. og så andre andre **tools** (sunburg\_MN\_03gm)  
 and then other other tools  
 'and other tools'
- c. jeg må nå bake sikkert en fem seks **pies** (coon\_valley\_WI\_07gk)  
 I must now surely a five six pies  
 bake  
 'I surely have to bake five to six pies'
- d. de var store **cookies** vet du (wanamingo\_MN\_04gk)  
 they were big cookies you know  
 'they were big cookies, you know'
- e. jeg tegner # **cartoons** (sunburg\_MN\_03gm)  
 I draw # cartoons  
 'I draw cartoons'
- f. Norge har fem **dialects** (portland\_ND\_01gm)  
 Norway has five dialects  
 'Norway has five dialects'

As can be seen from these data, the expressions where the *-s* appear are otherwise Norwegian, which gives reason to assume that the structures and feature bundles that are generated are those typically associated with a Norwegian structure. On the basis of the discussion in the previous sections, the pattern in (28) is unexpected; Norwegian exponents should be a better match for the features in the structure since they could match all features, whereas the English plural *-s* only matches with plurality. In this section, I will discuss this problem, and finally propose an analysis for such phrases using the exoskeletal framework.

The occurrence of the English plural *-s* mixed into a non-English structure is not limited to Norwegian–English mixing, nor is it a new phenomenon. Myers-Scotton (1993) finds this pattern in her data with mixing between English and Bantu languages, and she describes it as a production error; the plural morpheme must have become part of the same lexical entry as its head. Moreover, her MLF model does not exclude appearance of functional morphemes from the EL as long as the ML version of it also is present, which is supported by data showing a double plural marking in such cases. In the AmNo context, the occurrence of the plural *-s* is previously observed by Haugen (1953)<sup>28</sup> and by

28 Haugen also observes a difference among his informants in their usage of the plural *-s*: What he calls *pre-bilingual borrowers* are speakers who have learnt English in adulthood and thus are not recognized as truly bilingual. In this group, the *-s* is taken to be part

Hjelde (1992). As discussed in 2.1, ninety-three cases where the English plural -s is used as the sole functional exponent in plural phrases within otherwise Norwegian contexts are found in CANS. This strongly suggests that we no longer can regard it a production error.

A closer look at the phrases in (28) reveals that they have two things in common: they are indefinite and they involve English stems.<sup>29</sup> This provides a first step towards an analysis. A question of interest in this context concerns the nature of the definiteness feature: what does it really mean to be indefinite? One hypothesis, assumed by Julien (2005), is that there is no indefinite feature, just the absence of the definite one. She supports this among other things by referring to the Norwegian adjectival inflection:

The fact that adjectives in indefinite DPs inflect like predicative adjectives could be taken to mean that the realisation of the adjectival agreement never makes reference to indefiniteness features. Alternatively, [...] it might be that indefiniteness simply means absence of any definiteness feature, so that adjectival phrases contained in indefinite DPs have the same feature makeup as predicative adjectival phrases, which never have a definiteness feature since they are not inserted in a nominal environment. (Julien, 2005: 46)

If this is the case, it would mean that the feature bundles of F in indefinite phrases have one feature less for the exponent to match, which leaves us with gender as the main difference between the English and the Norwegian functional projection, and thereby also the main factor in the analysis of the English plural -s in the AmNo material.

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of the nominal stem, and the Norwegian suffix is added as well. However, in the second group, the *childhood bilinguals*, the plural -s is occasionally used as the sole exponent of plurality. As the informants in CANS are all 2<sup>nd</sup> or later generations of AmNo speakers, who are born in the US or Canada and have learnt English in school, I consider them part of the second group.

- 29 Actually, there are a few examples which are definite and a few that involve Norwegian stems in CANS. I have found 5 cases of the former, some examples being *disse pill-s-ane* 'these pills' (westby\_wi\_03gk) which has both an English and a Norwegian functional suffix, and *disse homesteader-s* 'these homesteaders' (stillwater\_MN\_01gm), which has only the English suffix. Of the latter, Norwegian stems with an English plural suffix, I have found 4 cases. A couple of examples are *spiseplass-es* 'dining areas' (coon\_valley\_wi\_01gk), and *innvanderer-s* 'immigrants' (flom\_MN\_01gm). These data are in fact very interesting, but beyond the scope of the present article.

I propose an analysis where the plural *-s* is considered a gender neutral alternative. In the following, I will put forward arguments to support this. Starting with the broad picture, gender differences are not particularity prominent in Norwegian plural phrases. In fact, neither adjectives nor weak quantifiers accompanying such indefinite phrases differentiate between genders in their plural form. This is true also for the AmNo data in (28) where *mange* ‘many’, *andre* ‘other’, *fem seks* ‘five six’, and *store* ‘big’ would all be the same regardless of the gender feature in F. This is typical for many gender systems, as described by Dahl (2000: 582): “Singular and plural gender systems often differ in the number of distinctions made: in structuralist terms, some distinctions may be ‘neutralized’ in the plural”. Such a neutralization of gender is thus true for the prenominal adjectives and weak quantifiers in Norwegian noun phrases.

Still, gender is normally of crucial importance for the realization of the functional suffix in plural Norwegian noun phrases, which is exactly where the *-s* is inserted. In indefinite, plural contexts, Norwegian offers three possible exponents, against English’s single exponent, displayed in (29).

(29)	Norwegian exponents <sup>30</sup>		
	[PL, M]	↔	<b>-ar</b>
	[PL, F]	↔	<b>-er</b>
	[PL, N]	↔	-
	English exponents		
	[PL]	↔	<b>-s</b>

One possible analysis of the phrases in (28) could then be that a neutralization of gender, also in the case of the functional suffix, is in progress in AmNo. Without the gender feature present, Norwegian and English exponents would have the same criteria for insertion, making the English plural *-s* just as suitable as a Norwegian alternative. This, however, would imply that the *-s* is an equally adequate alternative also in cases with a Norwegian stem, which is not what the typical pattern in the data show. The vast majority of nouns stems receiving the plural *-s* in AmNo are realized by an English exponent, which should not be disregarded from the analysis.

30 These exponents are typical for the written standard *Nynorsk*, as well as for several dialects, and they show the most obvious gender difference. The main argument will remain even if one used other dialects or *Bokmål*.

A second possible analysis thus takes us into a discussion of the establishment of gender in the functional feature bundle. Although gender is not considered a property of the noun stem, Picallo (2008) and Nygård and Åfarli (2015) propose that the conceptual “class” or “entity category” associated with the stem nevertheless plays a facilitating role in the establishment of the value of the gender feature. Following Nygård and Åfarli (2015), I assume that the Norwegian gender category is ultimately anchored in biological gender. But once gender is established as a grammatical category in a language, any noun must be adapted into the system. Considering the nouns not denoting a biological gender, the establishment of grammatical gender turns out to be more or less arbitrary and something that must be learned. Nevertheless, once the connection is established between a stem and a specific grammatical gender, it tends to stick. In the case of Norwegian, I assume that this connection between a stem and the gender it is typically associated with is well established and dependable, and that this link is maintained through input and production.

Heritage speakers of AmNo, however, experience fundamentally different conditions in terms of input and production, which has consequences for the establishment of gender. In his studies of the *trønder* dialect, Hjelde (1992) finds that gender on Norwegian nouns in AmNo is relatively stable. Newer studies of gender on Norwegian nouns in AmNo are not entirely consistent in their conclusions. Johannessen and Larsson (2015) investigate 34 speakers in CANS and find an overall stability in gender. However, they also report a tendency to overgeneralize to the masculine. Lohndal and Westergaard (2016), on the other hand, conducts a cross-cutting investigation of all 50 speakers in CANS and find a more crucial change, or even erosion, in the gender system. The contrast between the two studies is striking, and might be, as pointed out by Lohndal and Westergaard (2016) themselves, at least partially explained by the definition of gender employed, where Johannessen and Larsson (2015) includes the definite suffix as a gender marker, which Lohndal and Westergaard (2016) do not.

Concerning the English nouns, these are essentially not associated with a specific gender, or even the gender category. Moreover, the input to rely on is scarce, making the gender assignment a process that happens quite spontaneously in the mixing cases, which may result in ambiguity, especially in plural cases where no hints are provided by accompanying adjectives or weak quantifiers either. This opens the door to the English functional exponent as a proper substitute. A first reason for this is precisely its appearance as a gender neutral alternative where the speaker does not have to make a decision. And considering the bilingual nature of these speakers, it is not surprising that the English

exponent is easily accessible. Additionally, inserting a Norwegian exponent, which *is* specified for a particular gender feature, could in fact mean violating the Subset Principle if that gender feature does not have a counterpart in the structure. Instead, the English plural *-s* turn out to be the most appropriate exponent under the Subset Principle, matching a subset of the relevant features.

In a way then, one can say that gender is being neutralized also in the case of the functional suffix, and that this is a consequence of the problems related to establishing a gender value based on an English noun stem. A further speculation may be that as the gender system changes, the *-s* would become increasingly attractive as a gender neutral alternative also for the Norwegian nouns, which we could see the emergence of in the examples mentioned in footnote 29. For the time being, however, this analysis captures the two present characteristics of phrases with the plural *-s*: The lack of the indefiniteness feature explains why the *-s* appears mostly in indefinite phrases, and the uncertainty connected to the gender assignment when involving an English stem, accounts for the fact that this almost exclusively occurs on precisely English nouns.

## 7 Summary and Conclusion

This article started out with two main goals, namely to provide an analysis of AmNo noun phrases that show mixing between Norwegian and English, and to demonstrate that the empirical insights can be captured in an explanatory way by an exoskeletal approach to grammar.

The contact between the heritage language AmNo and the majority language English in the US has left its mark on AmNo as, among other things, many English items being mixed into it. In this article, I have approached noun phrases showing such a mix and provided a formal analysis for these. The typical pattern is characterized by English content items occurring together with Norwegian functional material such as determiners and suffixes. This pattern is accounted for by an exoskeletal model which separates principally between the realization of functional and non-functional terminals in an abstract syntactic structure. English stem exponents are freely inserted into open slots in the structure, whereas functional exponents are inserted by a principle of feature matching. In the case of AmNo, this accounts for the fact that functional exponents are drawn from Norwegian; they simply provide the best match to the relevant feature bundles. A discussion of a more unexpected pattern, the

occurrence of the English functional exponent *-s* shows how also this phenomenon may be analyzed in an exoskeletal model.

The analyses of the empirical material in question in this article corroborate the exoskeletal approach to grammar. This framework is primarily motivated by a series of studies of monolingual data (cf. the references in 4.1). However, any model needs to be constantly tested against new data, and the ability to reject falsification tells us how strong that model is. This article shows how the proposed model is able to explain different patterns even when encountering more peripheral data, such as language mixing. This establishes the model as a Null theory of language mixing. At the same time, the notion of the structural frame and the realization of functional exponents regulated by the Subset Principle, offers an explanation to the asymmetry that is observed between languages involved in language mixing. As a result, the exoskeletal model is able to combine the insights from different theoretical frameworks in analyzing language mixing.

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