The syntax of floating quantifiers: stranding revisited

Cirillo, R.J.

Citation for published version (APA):
Chapter 4: Issues in the Study of Floating Universal Numeric Quantifiers, or
Quantifiers, determiners and numerals are all three interesting

0. Introduction

This chapter is motivated by the fact that in the Germanic and Romance languages a universal quantifier can combine with a numeral and form a different kind of floating quantifier that provides further evidence in support of the Stranding Analysis. The following examples from Dutch and Romanian demonstrate this:

(1) a. *Alle drie de studenten hebben het boek gelezen.            (Dutch)
    all three the students have the book read
   
   b. De studenten hebben alle drie het boek gelezen.
      the students have all three the book read

(2) a. *Niet alle drie de studenten hebben het boek gelezen.      (Dutch)
     not all three the students have the book read
   
   b. De studenten hebben niet alle drie het boek gelezen.
      the students have not all three the book read

(3) a. *Toți trei studenții au citit cartea.                     (Romanian)
     all three students-the have read book-the
   
   b. Studenții au citit toți trei cartea.
      students-the have read all three book-the

(4) a. Nu toți trei studenții au citit cartea.                 (Romanian)
     not all three students-the have read book-the
   
   b. *Studenții au citit nu toți trei cartea.
      students-the have read not all three book-the

Based on these data, one can observe several similarities between a bare universal quantifier, which I will call $\forall Q$, and a universal quantifier in combination with a numeral, which I will call a universal numeric quantifier or simply $\forall \text{NumQ}$. First of all, like a $\forall Q$, a $\forall \text{NumQ}$ selects a definite DP. Secondly, both $\forall Q$ and $\forall \text{NumQ}$ can be stranded. Thirdly, both $\forall Q$ and a $\forall \text{NumQ}$ can be stranded in negated form in the Germanic languages, but not in the Romance languages. This very strongly suggests that $\forall Q$ and $\forall \text{NumQ}$ occupy the same position, which would be Q. Note, however, that not all co-occurrences of a $\forall Q$ and a numeral constitute a $\forall \text{NumQ}$, particularly
a determiner comes between the quantifier and the numeral. If a determiner appears between the quantifier and the numeral, a bare \( \forall Q \) has selected a DP that is headed by a D that has selected a CardP (a phrase headed by a cardinal numeral). In the following pairs of sentences from two languages, one can see the contrast between DPs that contain a CardP and are selected by a bare \( \forall Q \) and DPs selected by a \( \forall \) NumQ:

\[
(5) \ 
\begin{array}{ll}
\text{a.} & \text{Al de drie studenten hebben het boek gelezen.} \quad \text{(Dutch)} \\
& \text{all the three students have the book read} \\
\text{b.} & \text{Alle drie de studenten hebben het boek gelezen.} \\
& \text{all three the students have the book read} \\
\end{array}
\]

\[
(6) \ 
\begin{array}{ll}
\text{a.} & \text{Tutti i tre studenti hanno letto il libro.} \quad \text{(Italian)} \\
& \text{all the three students have read the book} \\
\text{b.} & \text{Tutti e tre gli studenti hanno letto il libro.} \\
& \text{all and three the students have read the book} \\
\end{array}
\]

I will argue in this chapter that the (a) sentences in (5) and (6) have the base-structure in (7) and the (b) sentences the base-structure in (8):

\[
(7) \ [Q \ P \ [Q \ P \ [D \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P\ ]]]]]]]]]]]]]]
\]

\[
(8) \ [Q \ P \ [Q \ P \ [D \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P \ [C \ d \ [N \ P\ ]]]]]]]]]
\]

Note that the (b) sentences in (5) and (6), with their \( Q > \text{Card} > D > N \) word order, contradict the word order in the nominal hierarchy that I proposed in Chapter 1, which was as follows:

\[
(9) \ Q > D > \text{Card} > N
\]

Based on this, one might expect them to be ungrammatical. However, if Q and Card in the (b) sentences are considered to form a \( \forall \text{NumQ} \) located in Q, there is no divergence from the hierarchy in (9). The claim that a \( \forall \text{NumQ} \) is located in its entirety in Q is supported by the fact that in (5) and (6) the element that selects DP, that is, the element that immediately precedes the definite article, can be stranded, whether it be a bare quantifier, as in the (a) sentences, or a \( \forall \) NumQ, as in the (b) sentences. Examples (10) and (11) represent (5) and (6) with stranding:

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1 The insertion of the conjunction \( e \) (and) between the quantifier and the numeral in Italian is a bit of a mystery but it can be traced back several centuries. It is apparently from the Latin \( et \) (and) and seems to have arisen as a generalisation from conjunction insertion in numerals such as \( venti e tre \) (twenty and three), which has simply become \( ventitre \) in modern Italian. For a discussion see Menger (1892).
A ∀NumQ does indeed seem to occupy Q as though it were a bare universal quantifier. The question is how it comes to occupy that position, given that it consists of two elements, a ∀Q and a numeral. Universal quantifiers like all and its equivalents in other languages are already assumed to be base-generated in Q, but how does the numeral get there? One possibility is that a combination like all three is a stored lexical item that can be pulled out of the lexicon and inserted into a head position. Another possibility is that a ∀NumQ is derived by moving a numeral out of CardP and into Q. Both possibilities seem paradoxical, as we will see in the discussion that follows, but I will argue in Section 3 that the former one is the correct one.

This chapter has three purposes besides that of providing additional support for the Stranding Analysis. The first is to provide evidence that a ∀NumQ is not derived by movement of the numeral but is base-generated in Q in its entirety. The second is to discuss what kind of syntactic category a ∀NumQ might be and how it is derived. The third is to discuss an interesting unresolved issue, namely, the fact that in English and German the definite article is suppressed in a DP selected by a ∀NumQ.

I have organised the remainder of this chapter into five sections. Section 1 is a brief introduction to numerals and the role that they play within the nominal domain. In Section 2 I show that a ∀NumQ cannot be derived by movement of the numeral but must be base-generated in Q as a “pre-fabricated” unit. In Section 3 I discuss the difficulties involved in trying to categorise a ∀NumQ syntactically. In Section 4, I discuss the unresolved question of why the definite article is suppressed when a ∀NumQ selects a DP in English and German. Section 5 provides a summary.

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2 The Dutch universal quantifier takes on the form allen (pronounced alle) when stranded. In modern Dutch the adverbial quantifier allemaal is normally used instead of allen in stranding position.
1. The Status, Position(s) and Movement of Numerals

1.0. Introduction

Numerals are an essential component of \forall\text{NumQs}, and since I will be arguing that \forall\text{NumQs} are not formed by head movement of numerals to Q, a discussion of \forall\text{NumQs} must be preceded by a discussion of numerals, their status as syntactic heads, and their movement capability within the nominal domain. That is the purpose of this section. In Chapter 1 I already made the assumption that numerals are nominal heads. In this section I will present more explicit reasons for assuming that (cardinal) numerals are syntactic heads and will at the same time talk about their movement. As already mentioned, I will refer to a phrase headed by a cardinal number as a CardP.\footnote{I use the term CardP rather than NumP in order to avoid confusion with the NumP in Ritter (1991), which refers to singular vs. plural number. The term CardP is borrowed form Julien (2003), who also uses it for phrases headed by cardinal numbers.} My reasons for assuming that numerals are syntactic heads are presented individually in the sub-sections that follow.

1.1. Numerals undergo head movement

My first reason for assuming that numerals are heads is that they seem to undergo head movement. It has been claimed by Longobardi (2001) that numerals can move to D. Delsing (1993) also speaks of the “raising” of numerals. If we follow the widely accepted claim of Szabolcsi (1983) and Abney (1987) and assume that all nominal arguments are DPs, then sentences like the following one suggest that numerals move from Card to D as long as there is no other head in the way:\footnote{Under the Standing Analysis a QP is also an argument. I consider this to be consistent with Abney (1987) and Szabolcsi (1983) because a QP contains DP. Furthermore, when a quantifier is stranded, it is a DP that does the stranding and moves into subject-position.}

\begin{enumerate}
\item a. Three students entered the classroom.  
\item b. *Three her students entered the classroom.
\end{enumerate}

One might suggest that numerals are themselves determiners that can be base-generated in D. The problem with this suggestion is that numerals co-occur with determiners:

\begin{enumerate}
\item a. The teacher spoke with the twenty students in her class.  
\item b. The teacher spoke with some twenty students in her class.
\end{enumerate}

Another indication that numerals move to D is that in many languages the numeral one and the indefinite article are the same word, as seen in the following examples from German and French:

\begin{enumerate}
\item a. The teacher spoke with the twenty students in her class.  
\item b. The teacher spoke with some twenty students in her class.
\end{enumerate}
(14) Johann hat ein Buch.
    John has a/one book

(15) Jean a un livre.
    John has a/one book

The following Italian phrases\(^5\) provide additional evidence that numerals move to D:

(16) a. *suoi tre libri          b. i suoi tre libri          c. tre suoi libri
    her three books          the her three books          three her books

The reason for the ungrammaticality of (16a) is that neither the possessive pronoun nor the numeral can occupy D, and if D is empty a true DP cannot be formed. The possessive pronoun cannot occupy D because, as argued in Chapter 1, Section 2, possessive pronouns do not move to D in Italian. The numeral cannot move to D in (16a) because it is blocked by the possessive pronoun. In (16b), the D-position is occupied by the definite article, so we have a true DP. The only possible explanation for the grammaticality of (16c), given (16a) and (16b), is that the numeral has moved from Card to D. I will assume that the D position has a need to be filled and that there is a feature on the numeral that allows it to move to D and satisfy this need. The question that immediately arises here is how the numeral can move to D across the possessive pronoun in (16c). The answer to this question is that in (16c) it is not necessary for the numeral to move across the possessive pronoun. I say this because a possessive pronoun in Italian can occupy the head position of PossP, as in (16b), or an adjectival position below the numeral, as in (16c), in which case it does not prevent a numeral from moving to D. There is clear evidence that a possessive pronoun can appear in an adjectival position in Italian. In the following two sentences, D is occupied by the definite article, meaning that the numeral has not moved, and yet the possessive pronoun is in two different places:

(17) a. i miei due libri                      b. i due miei libri
    the my two books                       the two my books

The next question is whether there is any independent evidence that possessive pronouns have adjectival qualities that allow them to appear in an adjectival position below Card. There is evidence for this claim if one compares Italian with Spanish. In both of these languages, adjectives typically follow nouns. In Italian, prenominal and post-nominal possessive pronouns have the same form:

(18) a. mio padre                   b. padre mio
    my father                                    father my

In Spanish, on the other hand, there is a difference between prenominal and post-nominal possessive pronouns. The prenominal possessive is reduced and clitic-like, and not at all adjectival, since it cannot appear in post-nominal position:

\[(19)\]  
\[
\begin{array}{lll}
a. & \text{mi padre} & \text{padre mio} & *\text{padre mi} \\
my father & father my & father my
\end{array}
\]

Not only can a Spanish possessive pronoun not appear in post-nominal position, it cannot even appear in prenominal position if it follows a numeral:

\[(20)\]  
\[
\begin{array}{lll}
a. & \text{mis dos libros} & *\text{dos mis libros} \\
my two books & two my books
\end{array}
\]

Thus, if a possessive pronoun is adjectival, as in Italian, it can appear in an adjectival position below Card. Cardinaletti (1998) notes that Italian possessive pronouns can appear in two positions and uses the terms *strong* and *weak* to differentiate between Italian possessive pronouns and possessive pronouns in other Romance languages such as Spanish and Paduan. I maintain that since Italian possessive pronouns like the ones in (16), (17) and (18) have only a strong form, they have the option of heading PossP or appearing in an adjectival position below numerals. If they appear in adjectival position, they will not block movement of a numeral to D. In any case, the point of this sub-section is that numerals can move to D, which means that they must be heads.

1.2. \(\Phi\)-features and Case

As I pointed out in Chapter 1, it seems to be a characteristic of heads in the nominal domain that they share \(\Phi\)-features and Case with the head noun. Numerals are frequently uninflected, making it more difficult to ascertain whether they show \(\Phi\)-feature and Case agreement. However, there are also many examples of numerals that do show \(\Phi\)-feature and Case agreement with the head noun and other nominal heads, strongly suggesting that they, too, are heads. In Latin, the numerals meaning *two* and *three* are fully declined for gender, number and Case:

\[(21)\]  
\[
\begin{array}{llllllll}
a. & \text{Nemo potest duobus hominibus servire.} & \text{no one can two-Pl.-Masc.-Dat. men Pl.-Masc.-Dat. serve} \\
& b. & \text{Nemo potest duabus feminis servire.} & \text{no one can two-Pl.-Fem.-Dat. women-Pl.-Fem.-Dat. serve} \\
& c. & \text{Tria verba non potest iungere.} & \text{three-Pl.-Neut.-Acc. words not (he) can join} \\
& & & \text{(He can’t put three words together.)} \\
& d. & \text{Tres homines vidit.} & \text{three-Pl.-Masc.-Acc. men (he) saw}
\end{array}
\]
In Neapolitan, the numeral for two agrees in gender with the noun it modifies:

(22) Ciccio tene dduje frate e ddoje sore.
Ciccio has two (masc.) brothers and two (fem.) sisters

The numeral one, even if it is also the indefinite article in many languages, is nonetheless a numeral, and it agrees with the head noun in gender, number and Case, as the following German examples illustrate:

(23) a. Er hat nur einen Mann gesehen.
    he has only one-Sing.-Masc.-Acc. man seen

b. Er hat nur eine Frau gesehen.
    he has only one-Sing.-Fem.-Acc. woman seen

c. Er hat nur ein Haus gesehen.
    he has only one-Sing.-Neut.-Acc. house seen

Since numerals agree in Φ-features and Case with the head noun and other heads in the nominal domain, it seems logical to conclude they are also syntactic heads.

1.3. Case Assignment

It is well known that phrasal heads assign case. Verbs and prepositions are the obvious examples. Adjectives can also assign case, as the following examples illustrate:

(24) a. Ich bin der Sache müde. (German)
    I am the matter (GEN) tired

b. Iuris periti sunt. (Latin)
    law (GEN) skilled they are

It was shown in Chapter 1 that head nouns can assign genitive case, as seen in the following German example:

(25) Die Entdeckung Amerikas
    the discovery America (GEN)

Numerals also assign case. It was shown in Cardinaletti and Giusti (1989) that numbers assign Partitive Case, which is realised as the genitive. The proof of this lies in the fact that when the complement of a numeral is pronominalised and fronted in Italian, it must be in the form of the genitive clitic ne:
A similar phenomenon could be said to exist in Dutch, in which the pronominal _er_ functions very much the same as the Italian genitive clitic _ne_:

(27) a. Ik heb drie boeken gelezen.
    I have three books read

    b. Ik heb er drie gelezen.
    I have them (GEN) three read

Russian numerals are also known to assign genitive case:

(28) tri knigi
    three book (GEN)

1.4. Summary

Numerals undergo head movement, they show Φ-feature and Case agreement with the head noun just like determiners, possessive pronouns and other nominal heads, and they can assign case. Based on this evidence I assume that numerals are syntactic heads. With this background in numerals, we can now proceed to a discussion of ∀NumQ.
2. \( \forall \text{NumQ} \) must be base-generated in Q in its entirety

2.0 Introduction

In a combination such as all three the semantics of the two individual elements seems to be preserved, namely, universality and the quantity three. For this reason, in the interests of compositionality, one might prefer to derive a \( \forall \text{NumQ} \) by starting out with two independent elements, Q and Card, and then moving Card to Q. Nonetheless, in this section I will show that a movement analysis does not work and that Q and Card must be base-generated together in the same position. My arguments are based on structural obstacles to movement, on the lack of motivation for such movement, on the incompatibility of the selectional properties of \( \forall \text{NumQ} \) and CardP in Romanian, on the fact that floating adverbial quantifiers in Dutch and Swedish cannot be combined with a numeral, on the non-universality of \( \forall \text{NumQ} \), on the fact that a \( \forall \text{NumQ} \) can co-occur with a second numeral, and on the fact \( \forall \text{NumQ} \) has been lexicalised to some extent in Romanian.

2.1. Obstacles to Movement

In languages like Italian and Romanian, or even in the West Germanic language Dutch, the D-position is always occupied when there is a universal numeric quantifier, whether that quantifier is stranded or not. If D is always occupied, then Card cannot be moving from Card to Q, across D, to form a \( \forall \text{NumQ} \). Card must originate in Q in the first place. The following sentences from Dutch, Italian and Romanian demonstrate this:

(29) a. Alle drie de studenten hebben het boek gelezen.  
all three the students have the book read

b. De studenten hebben alle drie het boek gelezen.  
the students have all three the book read

(30) a. Tutti e tre gli studenti hanno letto il libro.  
all and three the students have read the book

b. Gli studenti hanno letto tutti e tre il libro.  
the students have read all and three the book

(31) a. Toți trei studenți-i au citit carte-a.  
all three students the have read book the

b. Studenți-i au citit toți trei carte-a.  
students the have read all three book the
2.2. Lack of Motivation for Movement

The purpose of movement is to satisfy features, either of the target or of the goal or of both. The fact that the following phrases are grammatical shows that there is nothing forcing a numeral to move into Q:

(32)  
  a. All the three students... (English)  
  b. Al de drie studenten... (Dutch)  
  c. Tutti i tre studenti... (Italian)

One could of course say that no movement of the numeral takes place in these phrases because of an intervening head in D. The point is that if numerals or universal quantifiers bore a feature that required movement of the numeral to Q, the phrases in (32) would crash. Furthermore, even if there is no intervening head, a numeral does not move to Q. Being positioned in Q means strandability, and a numeral is not strandable:

(33)  
  a. All lions are dangerous.  
  b. Lions are all dangerous.

(34)  
  a. Three lions are dangerous.  
  b. *Lions are three dangerous.

One might argue that there is evidence that a numeral is drawn to Q by a universal quantifier if there is nothing in D to block such movement, given the phrases all three students and its German equivalent alle drei Studenten. This is not a plausible claim, however. The movement of Card to Q across an empty D position should produce a strandable \( \forall \text{NumQ} \), but stranding is not possible in English and German if D is empty:

(35)  
  a. All three students have read the book.  
  b. *Students have all three read the book.

(36)  
  a. Alle drei Studenten haben das Buch gelesen.  
  b. *Studenten haben alle drei das Buch gelesen.

In other words, the numeral cannot be moving across an empty D position to form a \( \forall \text{NumQ} \) in (35a) and (36a), and there must be another explanation for the missing definite article. In Section 4 there will be more on \( \forall \text{NumQs} \) that appear without a determiner in English and German.

To summarise this sub-section, (32) shows that there are no features forcing movement of Card to Q; (33) and (34) show that numerals do not occupy Q on their
own, which indicates that they do not move there; and (35) and (36) show that movement of Card to Q would not in and of itself create a strandable ∃NumQ.

2.3. Selectional Properties of ∃NumQ in Romanian

As already shown in examples (3) and (31), Romanian possesses a strandable ∃NumQ. Careful analysis of the Romanian ∃NumQ reveals that it cannot have been derived by movement of the numeral to Q. Before presenting the data, I will point out some important peculiarities of the Romanian language.6

Romanian places both the definite article and possessive pronouns after the noun, and the two can co-occur. In fact, possessive pronouns in Romanian require the support of a determiner, just as in Italian. The following sentence illustrates this:

(37) Copii-i tâi au venit acasă.
    children the yours have come home

Romanian also has the prenominal determiners cel (masculine) and cea (feminine). The plurals of cel and cea are cei and cele, respectively. The universal quantifier toți (feminine toate) selects a definite DP, as one would expect, however that DP must be headed by the post-nominal definite article. It cannot be headed by the prenominal determiners cei and cele:

(38) a. Toate cărți-le sunt interesante.
    all books the are interesting

    b. *Toate cele cărți sunt interesante.
    all the books are interesting

There are two exceptions to this rule. The universal quantifier can select a DP headed by a prenominal determiner only if that determiner is a demonstrative or if a numeral is present:

(39) a. Toate acele cărți sunt interesante.
    all those books are interesting

    b. Toate cele trei cărți sunt interesante.
    all the three books are interesting

Whether a universal quantifier selects a DP headed by a post-nominal definite article, as in (38a), or a DP headed by a prenominal determiner, as in (39a) and (39b), it can be stranded. The following sentences are (38a), (39a) and (39b) with stranding:

6 My thanks to Mara van Schaik-Radulescu for helping me develop the Romanian data.
(40) a. Cărți-le sunt toate interesante.
    books the are all interesting

    b. Acele cărți sunt toate interesante.
    those books are all interesting

    c. Cele trei cărți sunt toate interesante.
    the three books are all interesting

When a numeral is used in a definite DP such as the Romanian equivalent of *the three books*, the D-element must be a form of *cel* or some other prenominal determiner, such as a demonstrative. It cannot be the post-nominal definite article:

(41) a. Cele/Acele trei cărți sunt interesante.
    the/those three books are interesting

    b. *Trei cărți-le sunt interesante.
    three books the are interesting

In other words, CardP can only be selected by a prenominal determiner.

With that background information we can now look at ∀NumQ in Romanian.

The Romanian ∀NumQ can be formed with numerals up to ten. Like a bare universal quantifier, it selects a DP headed by the post-nominal definite article or by a prenominal demonstrative. However, it cannot select a DP headed by a form of the prenominal determiner *cel*:

(42) a. Toate trei cărți-le sunt interesante.\(^7\)
    all three books the are interesting

    b. Toate trei acele cărți sunt interesante.
    all three those books are interesting

    c. *Toate trei cele cărți sunt interesante.
    all three the books are interesting

The following examples, derived from the sentences in (42a) and (42b), show that a Romanian ∀NumQ is strandable:

\(^7\) The structure in (42a) is slightly downgraded. Stranding of the ∀NumQ, as in (43a), eliminates the downgrading. This will be further discussed in Section 4.0.
(43)  a. Cărți-le sunt trei interesante.
    books the are all three interesting

    b. Acele cărți sunt trei interesante.
        those books are all three interesting

With that background, I can easily explain why a ∃numQ in Romanian cannot be formed by moving the numeral to Q. The derivation of a ∃numQ by movement of the numeral would have to go through the following steps:

We would start with a CardP such as "trei cărți (three books)". This CardP would have to be selected by a prenominal determiner such as "cele (the)", forming the DP "cele trei cărți (the three books)". This DP would then be selected by the universal quantifier "toate (all)", forming the QP "toate cele trei cărți (all the three books)"

(44)  Toate cele trei cărți sunt interesante.
        all the three books are interesting

At this point the quantifier and the numeral are not contiguous and do not yet form a ∃numQ. This can be seen in (45), which is (44) after it has undergone stranding. The fact that the quantifier is stranded without the numeral shows that the quantifier and the numeral in (44) do not form a ∃numQ:

(45)  Cele trei cărți sunt toate interesante.
        the three books are all interesting

Suppose now that we wanted to move the numeral in (44) to Q in order to form a ∃numQ. Ignore the problem of the intervening head in D. If we moved the numeral to Q in (44) we would generate the ungrammatical sentence in (42c). The only way to rescue (42c) would be to change the prenominal determiner to a post-nominal one:

(46)  Toate trei cărți-le sunt interesante.
        all three books the are interesting

In other words, in order to make a movement analysis work we would have to retroactively alter selections already made. Because the selectional requirements of a ∃numQ are incompatible with those of a CardP, the only way to get a universal quantifier and a numeral together in Romanian is to base-generate them together in Q.
2.4. Dutch and Swedish Adverbial Quantifiers

As shown in (47), when the Dutch universal quantifier *al* is stranded, it can take on its stranded form *allen* or become the adverbial *allemaal*:

(47) a. Al de studenten hebben het boek gelezen.
    all the students have the book read

    b. De studenten hebben allen/allemaal het boek gelezen.
    the students have all the book read

However, when the ∃NumQ *alle drie* is stranded, the quantifier *alle* cannot be replaced with *allen* or *allemaal* the way it could if it were by itself:

(48) a. Alle drie de studenten hebben het boek gelezen.
    all three the students have the book read

    b. *De studenten hebben allen drie/allemaal drie het boek gelezen.
    the students have all three the book read

    c. De studenten hebben alle drie het boek gelezen.
    the students have all three the book read

This shows that the ∃NumQ does not consist of the independent elements *alle* and *drie* but is an indivisible unit. If the two elements did not form a unit, one would expect (48b) to be as acceptable as (48c). That is, one would expect *alle* to become *allemaal* when stranded regardless of the presence of the numeral. Something similar occurs in Swedish, where the quantifier *alla* often assumes the adverbial form *allihop* when stranded:

(49) a. Alla studenterna kan ha läst boken.
    all students the might have read book the

    b. Studenterna kan allihop ha läst boken.
    students the might all have read book the

However, when the ∃NumQ *alla tre*, meaning *all three*, is stranded, the numeral *tre* cannot appear with the adverbial quantifier *allihop*:

(50) a. Studenterna kan alla tre ha läst boken.
    students the might all three have read book the

    b. *Studenterna kan allihop tre ha läst boken.
    students the might all three have read book the
Once again, if *alla tre* were not an indivisible unit, one would expect it to be able to become *allihop tre* in stranded form.

### 2.5. Lack of Universal Numeric Quantifier in Certain Romance Languages

I will argue in the next section that a \(\forall\text{NumQ}\) is formed by a non-universal, language-specific, lexically stored rule and inserted into Q. Assuming for the moment that this is so, not all languages can be expected to have a \(\forall\text{NumQ}\). This expectation is met. The Germanic languages that we have looked at seem to have a \(\forall\text{NumQ}\), as do the Romance languages Romanian and Italian. However, there are also Romance languages that appear not to have a \(\forall\text{NumQ}\), including Spanish, Catalán, Portuguese and French. This will be demonstrated in the Spanish sentences in (51) to (54). I point out that one could take these sentences and replace each Spanish word with its French, Portuguese or Catalán equivalent and obtain exactly the same results. Let’s take a look at these sentences now in order to see why I claim that some languages, like Spanish, do not have a true \(\forall\text{NumQ}\):

\[
(51) \quad \begin{align*}
\text{a.} & \quad \text{Todos los tres libros son interesantes.} \\
& \quad \text{all the three books are interesting}
\text{b.} & \quad \text{Los tres libros son todos interesantes.} \\
& \quad \text{the three books are all interesting}
\text{c.} & \quad *\text{Todos tres los libros son interesantes.} \\
& \quad \text{all three the books are interesting}
\text{d.} & \quad *\text{Todos tres libros son interesantes.} \\
& \quad \text{all three books are interesting}
\text{e.} & \quad *\text{Los libros son todos tres interesantes.} \\
& \quad \text{the books are all three interesting}
\end{align*}
\]

The (a) sentence corresponds to the normal Q > D > Card > N hierarchy. It is an instance of a Q that selects a DP that includes a CardP. The (b) sentence is simply the (a) sentence with stranding of the universal quantifier. The (c) sentence shows that the combination Q plus Card cannot select a DP as it can in Dutch or Italian. The (d) sentence shows that the combination Q plus Card cannot select a bare NP as it seems to do in English.\(^8\) The (e) sentence shows that a version of (c) and (d) with quantifier stranding also does not exist. Observe now the following sentences, which show that while Spanish does not have a true \(\forall\text{NumQ}\) it does have a substitute:

---

\(^8\)In Section 4 there will be a more detailed discussion of the English \(\forall\text{NumQ}\) followed by a bare NP, for example, *all three children.*
The books are all the three interesting.

This sentence suggests that Spanish might have something like a stranded $\forall$NumQ, but there are at least two indications that this is not the case. The presence of the definite article between Q and Card is the first indication that this is not a $\forall$NumQ. The second indication is the double-occurrence of the definite article. What I would suggest is that the phrase todos los tres is a kind of appositive QP similar to expressions such as the appositive DP ellos mismos (themselves). This is shown in the following sentence, where the appositive ellos mismos appears in exactly the same position as todos los tres in (52):

The three books are themselves interesting.

Alternatively, one might be inclined to say that (52) is an instance of a true $\forall$NumQ that has been stranded and that the double occurrence of the definite article is simply a case of multiple spell-out. The following sentences show that this analysis is impossible:

a. Todos tus tres niños han venido a casa.
   all your three children have come home

b. Tus tres niños han venido todos a casa.
   your three children have come all home

c. Tus niños han venido todos los tres a casa.
   your children have come all the three home

d. *Tus niños han venido todos tus tres a casa.
   your children have come all your three home

The (a) sentence contains a universal quantifier (todos) that has selected a DP in which the possessive pronoun tus has moved to D. The (b) sentence is simply the (a) sentence with quantifier stranding. In the (c) sentence, we see that the appositive phrase todos los tres appears in what looks like a stranding position. If this were a case of $\forall$NumQ stranding with multiple spell-out of the item occupying D, we would not see the definite article los in the stranded phrase, but the possessive pronoun tus. As the (d) sentence shows, multiple spell-out of the possessive produces ungrammaticality.

One might ask how we can be sure that the stranded $\forall$NumQ observed in languages like Italian, Romanian and Dutch is not an appositive QP like the one found in French and Spanish. There is probably nothing to prevent one from analysing stranded $\forall$NumQs as appositive QPs, but there are three reasons why I believe that such an analysis would be wrong. First of all, a major generalisation would be
missed because the following two Dutch sentences would have to be accounted for separately while the Stranding Analysis derives both sentences from a common base-structure:

\[(55) \quad \begin{align*}
\text{a. Alle drie de studenten hebben het boek gelezen.} \\
\text{all three the students have the book read}
\end{align*}
\[(55) \quad \begin{align*}
\text{b. De studenten hebben alle drie het boek gelezen.} \\
\text{the students have all three the book read}
\end{align*}

Secondly, there is a clear structural difference between the \(\forall\text{NumQ}\) found in Dutch, Italian and Romanian, in which there is no determiner between the quantifier and the numeral, and the appositive QP found in Spanish, French and other languages, in which there is always a determiner between Q and Card.

Thirdly, unlike a true \(\forall\text{NumQ}\), the appositive QP only occurs post-verbally, suggesting that a \(\forall\text{NumQ}\) and an appositive QP are not the same:

\[(56) \quad \begin{align*}
\text{a. Los alumnos han leído todos los tres el libro.} \\
\text{the students have read all the three the book}
\end{align*}
\[(56) \quad \begin{align*}
\text{b. *Todos los tres los alumnos han leído el libro.} \\
\text{all the three the students have read the book}
\end{align*}

For these reasons, I choose to analyse the \(\forall\text{NumQ}\) found in languages like Dutch, Italian and Romanian as being different from the appositive QP found in languages like Spanish and French. There will be more on this in Section 4.3.

Let’s summarise what we can conclude from this discussion of Spanish, which is also valid for Catalán, Portuguese and French. We have seen that Spanish, unlike Italian and Romanian, does not have a true \(\forall\text{NumQ}\) but that it has a type of appositive QP that functions like a stranded \(\forall\text{NumQ}\). The fact that not all the languages in the rather tightly knit Romance language family possess a true \(\forall\text{NumQ}\) strongly suggests that a \(\forall\text{NumQ}\) is formed by a lexically stored rule and inserted directly into Q. In other words, a \(\forall\text{NumQ}\) is not derived by merging a quantifier and a numeral but is base-generated as a unit.

2.6. Co-occurrence of \(\forall\text{NumQ}\) and Numeral

I have been assuming the following hierarchy in the nominal domain:

\[(57) \quad Q > D > \text{Card} > N\]

If a \(\forall\text{NumQ}\) is base-generated in Q, the model predicts that a \(\forall\text{NumQ}\) will be able to co-occur with a bare numeral in Card. Observe the following Dutch and Italian sentences:
The immediate relevance of (58) and (59) is that they contain two numerals. This can only be possible if one of the numerals is in Card and the other in Q with the universal quantifier. This may be the strongest indication yet that the quantifier and numeral in a $\forall$NumQ are base-generated together in Q.

2.7. Romanian Again: Lexicalised Universal Numeric Quantifiers

Assuming that a $\forall$NumQ is base-generated in Q by a lexically stored rule, one might ask whether lexicalisation of the actual $\forall$NumQ might also occur. There is evidence in Romanian that it does happen. In certain forms of regional, colloquial, or perhaps antiquated speech, the universal quantifier toți has combined with the numerals from three to ten to form a single word with the syntax (strandability) and the semantics of a normal $\forall$NumQ. There are three things that tell us that these lexicalised quantifiers are a single word. First of all, the quantifier toți appears in the reduced form tus and is almost like a prefix with low stress. Secondly, these lexicalised $\forall$NumQs, which always begin with tus, can be masculine or feminine even though tus is actually the reduced form of the masculine form toți. Thirdly, this is not a truly productive process, since it only covers numerals from three to ten. The words are as follows:

(60) a. tustrei (all three)  b. tuspatru (all four)  c. tuscinci (all five)
     d. tusșase (all six)  e. tusșapte (all seven)  f. tusopt (all eight)
     g. tusnouă (all nine) h. tuszece (all ten)

As I have mentioned, I will argue in the next section that a $\forall$NumQ is not a lexically stored item per se but is formed by a lexically stored rule that combines two lexical entries. My conjecture is that because a $\forall$NumQ is formed by a lexically stored rule and inserted from the lexicon into Q, it lends itself to lexicalisation. The examples in (60) support this.
2.8 Summary

In this section I have presented a considerable amount of evidence that a \( \forall \text{NumQ} \) is not derived by moving Card to Q but is base-generated in its entirety in Q. First of all, the determiner between Q and Card is an obstacle to movement of the numeral and there is a lack of motivation for such movement anyway. In Romanian, a CardP can only be selected by a prenominal determiner, but a \( \forall \text{NumQ} \) can only select a DP headed by a post-nominal determiner. These incompatible selectional properties of CardP and \( \forall \text{NumQ} \) mean that the only way to combine Q and Card is to base-generate them together. In Dutch and Swedish the universal quantifier can assume adverbial form when stranded, but not in combination with a numeral. This inalterability of the universal quantifier in a \( \forall \text{NumQ} \) is an indication that a \( \forall \text{NumQ} \) is not derived by moving two separate items together but is base-generated as a unit in Q. Not all languages have a \( \forall \text{NumQ} \), which also suggests that it is a phenomenon governed by lexical rules that insert it into Q rather than by syntactic movement rules. A \( \forall \text{NumQ} \) can also co-occur with a numeral, which shows very clearly that a \( \forall \text{NumQ} \) is base-generated in Q. Finally, Romanian has experienced a certain lexicalisation of \( \forall \text{NumQ} \), which also suggests that a \( \forall \text{NumQ} \) is formed by lexical rules rather than by movement. The facts are simple. Because a numeral can be stranded with a universal quantifier, it must be located in Q, and if it cannot be moved there, the only way for it to get there is to be base-generated there. In the following section, I will go into more detail about how a \( \forall \text{NumQ} \) is actually formed and what kind of syntactic category it is.

3. Formation and Categorisation of All Three

I have argued that an expression such as all three is located in Q, the head position of QP, but this raises two questions: How do the two elements all and three come together in the first place and what kind of syntactic category does this word combination represent? The purpose of this section is to answer these questions.

Di Sciullo and Williams (1987) refer to anything that can be inserted into an \( X^o \) position as a syntactic atom. A syntactic atom can consist of more than one word, in which case it is either a phrase or a compound. I will briefly explain how Di Sciullo and Williams distinguish between these two items.

A phrasal syntactic atom is simply a phrase that has been reanalysed as a word. Accordingly, it is referred to by Di Sciullo and Williams as a syntactic word. The Romance languages are full of nouns that are actually reanalysed VPs. An example is the French noun essuie-glace (windshield wiper), which is a VP consisting of the finite verb essuie (wipes) and the object noun glace (windshield). The French noun lève-tôt, also a VP, is an even better example because it is a noun even though it does not contain a nominal element. It consists of the finite verb lève (gets up) and the adverb tôt (early) and means early riser. An important characteristic of syntactic words in Di Sciullo and Williams’ analysis is their syntactic atomicity or
impenetrability. In an expression such as *essuie-glace, for example, it is impossible to insert an adverb between the verb and the noun, although this would be completely unproblematic in a normal VP:

(61) *essuie-bien-glace
    wipes well windshield

Di Sciullo and Williams argue that expressions like this cannot be considered to be compounds in the usual sense, because a compound has an easily identifiable head that clearly determines its syntactic category. For example, in the English compound bartend the head is the verb tend. Furthermore, the head of a compound determines not only its syntactic category but its semantics as well, so that in the compound dogsled, for example, the head is sled and the meaning is a sled pulled by dogs rather than a dog that pulls a sled. Note also that compounds are head final, unlike the above-mentioned reanalysed VPs essuie-glace andlève-tôt. This leads Di Sciullo and Williams to treat compounds as affixed words rather than as phrases. Di Sciullo and Williams claim that both syntactic words and compounds are idiomatic and therefore listed in the lexicon.

Before applying Di Sciullo and Williams’ approach to the question of ∀NumQ, there are two more characteristics of compounds that I would like to point out. First of all, in a compound the individual elements often lose their compositionality. Think of expressions like babysitter and bodyguard. Secondly, in English, primary stress normally falls on the first element in the compound. With that background, I would like to consider whether a ∀NumQ could be classified as a compound or a syntactic word.

A ∀NumQ does not seem to fit the description of a compound at all. For example, a phrase like all three could not be said to be a single lexical item consisting of two words, since it is compositional, with both elements retaining their full meaning. Furthermore, it would be difficult to say that all three is a lexically stored item. The universal quantifier can combine with an infinite number of numerals. It is just as natural to say “all seventeen million, three hundred thousand, five hundred thirty-six inhabitants” as it is to say “all three inhabitants.” Another problem with classifying a ∀NumQ as a compound is the fact that in all three stress is on the numeral. Normally, one would expect the stress to fall on the first element if this were a normal compound. Another relevant point is that if all three were a compound, since compounds are head-final, the numeral would have to be the head. However, it would be difficult to argue that a ∀NumQ is a numeral rather than a universal quantifier. A ∀NumQ like all three behaves like a universal quantifier, not like a numeral. It can be stranded, while a numeral cannot, and it shows the semantic strength of a universal quantifier, not the weakness of a numeral:

(62) a. There are three rabbits in the garden.
b. *There are all three rabbits in the garden.
A ∀NumQ can also be negated in a non-contrastive context, while a numeral cannot:

(63)   a. Not all three students did their homework.
       b.*Not three students did their homework.

It is for these reasons that I refer to phrases like all three as a universal numeric quantifier or ∀NumQ rather than a compound quantifier.

Even if a ∀NumQ is not a compound, it is nonetheless a combination of two lexical items that together occupy an X° position. The two lexical items also form an impenetrable unit, since nothing can appear between the universal quantifier and the numeral. For these reasons, Di Sciullo and Williams’ term syntactic word seems more appropriate than the term compound if one is speaking about a ∀NumQ. The problem is that according to Di Sciullo and Williams a syntactic word is an idiomatic, stored lexical item, and because there are an infinite number of combinations of a universal quantifier and a numeral it would be difficult to say that a ∀NumQ is a stored item.

What is stored in the lexicon, I propose, is a rule that allows the universal quantifier to combine with a numeral. Lexical rules for the combination of numerals are known to exist. In Booij (2008), for example, the Dutch numerals from one to nineteen are argued to be stored lexical words, as are the multiples of ten (twenty, thirty, forty etc.) and higher numbers like hundred and thousand. Other numerals, such as twenty-three or four hundred eight, are formed by lexical rules that are comparable to the syntactic rules that combine words and phrases. Booij refers to the rules that form numbers as constructional idioms. They operate on a finite number of numerals (words) to form an infinite number of numbers, just as syntactic rules can form an infinite number of sentences. Booij is concerned with Dutch numerals but, as he points out, his concept of constructional idiom carries over to other languages.

The fact that number formation rules are lexical idioms creates the expectation that there would be cross-linguistic variation. There are in fact numerous examples of inter- and intra-linguistic variation. In modern English one says “twenty-three” rather than “three and twenty,” however “three and twenty” was the norm until fairly recent times, and is still the norm in all other Germanic languages. In older varieties of Italian it was also normal to say “twenty and three” (“venti e tre”). In modern Italian the conjunction is omitted and one says “ventitre.” Standard French has no word for “seventy,” “eighty” or “ninety.” Seventy is expressed by saying “sixty-ten” (soixante-dix), “eighty” is “four-twenty” (quatre-vingt), and “ninety” is “four-twenty-ten” (quatre-vingt-dix). Mandarin has a one-syllable word (wàn) which means “ten thousand” but has no word meaning “million.” The number “one million” is thus expressed by saying “one hundred ten thousand” (yībāiwàn). This goes to show that number-formation is handled by language-specific lexical rules.

The rule that I propose for the formation of ∀NumQ follows from Booij’s rules for number formation and may very well be one of them, since it also involves
numerals. It is analogous to the rule that allows two numbers such as twenty and three to appear as the single word twenty-three in the Card-position. The \( \forall \text{NumQ} \) formation rule must be a lexical rule, for at least two reasons. First of all, the \( \forall \text{NumQ} \) that it creates is inserted directly into Q, an X' position. Secondly, like the rules for number formation, it is subject to cross-linguistic variation. Dutch and Romanian form a \( \forall \text{NumQ} \) by simply combining a universal quantifier and numeral. Italian requires the insertion of a conjunction between the two elements. French and Spanish do not have a rule that creates \( \forall \text{NumQ} \). Incidentally, as argued in Menger (1892), the insertion of a conjunction in an Italian \( \forall \text{NumQ} \) is believed to have arisen as a generalisation from the above-mentioned (now defunct) conjunction-insertion rule for number formation. The fact that the rule for \( \forall \text{NumQ} \) formation is a generalisation from a number formation rule suggests that the \( \forall \text{NumQ} \) formation rule is itself part of the group of number formation rules described by Booij. The fact that in Romanian a \( \forall \text{NumQ} \) can only be formed with the numerals from one to ten is also a strong indication that a language-specific lexical rule is involved in \( \forall \text{NumQ} \) formation.

In this section I have argued that a \( \forall \text{NumQ} \) can be explained as a syntactic word within the framework of Di Sciullo and Williams (1987) that has been created by means of a \( \forall \text{NumQ} \) formation rule that is actually one of the constructional idioms that create numbers in the manner described by Booij (2008). My analysis provides an explanation for how the Q-position can be occupied by two elements, and with this explanation the behaviour of a \( \forall \text{NumQ} \) follows nicely from the Stranding Analysis of floating quantifiers. As is the case with most theories, there is an issue with the present one. It will be discussed in the following section.

4. **Unresolved Question: What happens to the definite article in English and German?**

4.0. **Introduction**

I have posited the following base-structure for phrases involving a \( \forall \text{NumQ} \):

\[
(64) \quad \forall \text{NumQ} > D > N
\]

Examples (1), (3) and (6b), repeated here in the (a) sentences in (65) to (67), illustrate the cross-linguistic validity of this structure. The (b) sentences correspond to the (a) sentences with stranding of the \( \forall \text{NumQ} \):

\[
(65) \quad \begin{align*}
\text{a. Alle drie de studenten hebben het boek gelezen.} & \quad \text{(Dutch)} \\
& \quad \text{all three the students have the book read}
\end{align*}
\]

\[
(66) \quad \begin{align*}
\text{b. De studenten hebben alle drie het boek gelezen.} & \quad \text{(Dutch)} \\
& \quad \text{the students have all three the book read}
\end{align*}
\]
These sentences show that within the framework of the Stranding Analysis the base-structure in (64) works fine for Dutch, Italian and Romanian. Nonetheless, it raises some serious questions regarding the definite article in English. Consider the following four sentences:

(68) a. *All three the students have read the book.
   b. The students have all three read the book.
   c. All three students have read the book.
   d. *Students have all three read the book.

In (68a) the underlying structure in (64) appears in the Surface Structure and produces infelicitous results that we do not see in the other languages that we have analysed. Note that the word order in (64) is effectively Q > Card > D > N. This Surface Structure word order contrasts with the standard hierarchy that I proposed in Chapter 1 for the nominal domain, which was as follows:

(69) Q > D > Card > N.

I have demonstrated the cross-linguistic validity of this hierarchy with phrases such as the following:

(70) a. English: All the three books
   b. Dutch: Al de drie boeken
   c. German: Alle die drei Bücher
   d. Romanian: Toate cele trei cărți
   e. Italian: Tutti i tre libri

I would like to suggest that the formation of a ∀NumQ, which produces Q > Card > D word order, conflicts with the standard Q > D > Card hierarchy shown in (69) and (70) and may result in a language-specific Surface Structure constraint that blocks word order that deviates from the standard hierarchy. This constraint would stipulate that it is the contiguous appearance of the elements Q, Card and D, in that order, that causes a deviation from the standard hierarchy in (69). Stranding the ∀NumQ avoids the contiguous appearance of Q, Card and D and “rescues” a
sentence just as the stranding operation in (68b) rescues (68a). English is not the only language affected by this. German is also affected, as the contrast between the following two sentences demonstrates:

\[(71)\]
\[
a. *\text{Alle drei die Studenten haben das Buch gelesen.}
\]
\[
b. \text{Die Studenten haben alle drei das Buch gelesen.}
\]

Also, I mentioned in Section 2.3 that a Romanian sentence like (66a) is slightly downgraded and that stranding, as in (66b), eliminates the downgrading. Thus, there does seem to be a constraint blocking word order that is opposed to the basic hierarchy in (69) and (70). I emphasise that this is a language-specific constraint, since Dutch and Italian, for example, do not have it. Surface Structure constraints that can be evaded by stranding do seem to exist:

\[(72)\]
\[
a. \text{David, Stephen and Chan have all arrived.}
\]
\[
b. *\text{All David, Stephen and Chan have arrived.}
\]

If there is in fact an English-specific Surface Structure constraint against violating the order Q > D > Card, perhaps stranding is not the only way to evade the constraint. Example (68c) shows that suppression of the article may be another strategy. If this is so, (68d) shows that both strategies, that is, stranding and suppression of the article, cannot be applied at once. Clearly, this issue of the definite article illustrated in (68) is complicated and requires investigation. In the following sub-sections I will discuss three different approaches that one might take in order to solve this problem.\footnote{One might try to argue that (72b) is impossible because a universal quantifier cannot select conjoined DPs and that in (72a) the floating quantifier is either a kind of appositive or an adverbial. The problem with this approach is that a universal quantifier can in fact select conjoined DPs, as in All the doctors and nurses have spoken with the patient. I believe that the problem with (72b) is the singular number of the first element after the plural quantifier all. This combination seems anomalous and results in a Surface Structure constraint that can be avoided by stranding. There will be more on this in Chapter 5. One might also try to argue that the contrast between (68a) and (68b) on the one hand and the contrast between (72a) and (72b) on the other are evidence against the Stranding Analysis and force one to accept the Adverbial Analysis. As I will discuss in Chapter 5, the Adverbial Analysis would have as much difficulty with these contrasts as the Stranding Analysis.}

4.1 Perhaps English has no \(\forall\text{NumQ}\)

Suppose that English was more like Spanish and French and had no \(\forall\text{NumQ}\). This would mean that in (68c) a universal quantifier has selected a DP in which the numeral has moved to an empty D-position. This approach would not only properly generate (68c). It would also explain the ungrammaticality of (68d), since in (68d) a numeral that is not located in Q has been stranded. Furthermore, it would correctly fail to produce the ungrammatical (68a). Nonetheless, this approach has at least
three weaknesses. First of all, in the Germanic languages a bare universal quantifier like all normally must select either a DP headed by a definite determiner or a bare NP with a generic meaning:

(73) a. All the students have read this book.
   b. All students drink beer.

The phrase three students in (68c) is neither a definite DP nor a bare NP with a generic meaning, and therefore should not be able to be selected by a bare universal quantifier.

The second problem with this solution is that it could only generate (68b) by positing an appositive QP such as the one found in Spanish and French. This is perhaps not a problem in and of itself, but keep in mind that in English the universal quantifier and the numeral appear in contiguous positions, with no determiner between them, in both stranding and non-stranding positions, just as in Dutch, Romanian and Italian. It therefore seems that English, too, has a true $\forall$NumQ. The situation is different in Spanish, Portuguese, French and Catalan, in which there is always a determiner between the quantifier and the numeral. Thus it would seem very unnatural to say that English has no $\forall$NumQ just because of the contrast between (68a) and (68c).

The third problem with this solution is that it wrongly generates the following sentence:

(74) ?/*Three students have all read the book.

This sentence seems anomalous because if there is a universal quantifier present one expects a definite or generic DP. This already casts doubt on the idea just suggested that in (68c) a bare universal quantifier has selected a DP in which a numeral, which is not inherently definite, has moved to D. Nonetheless, let’s assume for the moment that (74) is not totally bad and that it can be acceptable if one imagines that the numeral three refers to three specific students. In order to block (68d) we would then have to claim that the appositive QP all three cannot be co-referenced with a DP that is not definite. This is perhaps not implausible, given the definiteness of the quantifier all, but it is an additional stipulation that has to be made, and this renders this solution less desirable.

4.2. Perhaps $\forall$NumQ Selects a Bare NP with no Generic Meaning

We could say that English does possess a $\forall$NumQ and that (68a) is blocked by a Surface Structure constraint like the one suggested in Section 4.0. Then, in order to generate (68c), we could say that an English $\forall$NumQ differs from a bare universal quantifier in that it can select a bare NP even if the NP has no generic meaning. This approach is undesirable because it has two difficulties in addition to its dependence on the Surface Structure constraint mentioned in Section 4.0. The first
difficulty is that we would be saying that a bare quantifier and a $\forall$NumQ, although they are both strandable universal quantifiers in Q, have different selectional properties. The only way around this would be to propose the rather ad hoc hypothesis that a bare universal quantifier and a $\forall$NumQ both select bare NPs but that when a $\forall$NumQ selects a bare NP, as in (68c), the generic meaning is blocked by the presence of the numeral. The second difficulty that we would be getting into with this solution is that if we claim that a $\forall$NumQ can select a bare NP, we predict the grammaticality of (68d). In order to block (68d) we would be forced to propose another ad hoc constraint, namely, that a $\forall$NumQ can only be stranded if there is an overt definite article present, as in (68b). This approach seems a bit messy, with too many ad hoc constraints.

4.3. Failure to Spell Out the Definite Article

Another explanation for the contrasts in the examples in (68), hinted at in Section 4.0, might be as follows:

As shown in (68a), there is a language-specific constraint against producing word order that violates the standard hierarchical order $Q > D > Card > N$. This constraint can be complied with either by stranding, as in (68b), or by suppression of the definite article, as in (68c). The sentence in (68d) would be blocked because it unnecessarily applies both strategies at once. This approach thus accounts for all the sentences in (68).

The problem with this solution is that deletion is something that one finds in phonology. Nonetheless, syntactic deletion does exist. Examples are ellipsis, the deletion of a lower copy of a moved constituent, and the deletion of the Afrikaans negation marker $nie$ in certain instances when it occurs more than once in a clause. Deletion of the definite article following a $\forall$NumQ is not unmotivated. The definiteness of the universal quantifier could be said to render the definite article redundant. Since numerals have the ability to function as determiners, the combination of a universal quantifier and a numeral renders the definite article even more redundant. If one simply allows for the deletion of the definite article following a $\forall$NumQ, one can easily explain the sentences in (68). I therefore conclude that this explanation for the missing definite article is preferable to the two solutions presented in Sections 4.1 and 4.2.

Some readers may have noticed that if one is going to allow the deletion of a syntactic element, one could claim that the appositive QP that I posited for languages like Spanish in Section 2.5 is not an appositive QP at all but a $\forall$NumQ that creates a Surface Structure violation of the $Q > D > Card$ order and leads to suppression of the definite article. This argument would proceed as follows:

---

10 See for example den Besten (1986) and Biberauer (2008).
In Spanish there is a lexical constructional idiom à la Booij according to which a $\forall$ NumQ is formed by combining $\forall$, D and Card. This produces a syntactic word à la Di Sciullo and Williams that is inserted into Q and selects a definite DP. This merging with a definite DP creates a Surface Structure violation of the Q $>$ D $>$ Card hierarchy in (69):

$$(75) \quad \forall_{[QP \text{ Todos los tres } [DP \text{ los alumnos}]]} \text{ han leído el libro.}$$

all the three the students have read the book

In this sentence a definite article follows a numeral, producing a violation of the standard hierarchy. The constraint against a Surface Structure violation of this hierarchy could be evaded either by stranding, as in (76a), or by deleting the determiner, as in (76b):

$$(76) \begin{align*}
\text{a. Los alumnos } & \text{ han leído todos los tres el libro.} \\
& \text{ the students have read all the three the book}
\end{align*}$$

$$(76) \begin{align*}
\text{b. Todos los tres los alumnos } & \text{ han leído el libro.} \\
& \text{ all the three the students have read the book}
\end{align*}$$

This analysis would not work because it would not be able to account for what is happening when the appositive QP found in Spanish and French co-occurs with a possessive pronoun instead of a definite article. Observe the following sentences, which are the same as in (76) except with a possessive pronoun:

$$(77) \begin{align*}
\text{a. Tus alumnos } & \text{ han leído todos los tres el libro.} \\
& \text{ your students have read all the three the book}
\end{align*}$$

$$(77) \begin{align*}
\text{b. Todos los tres tus alumnos } & \text{ han leído el libro.} \\
& \text{ all the three your students have read the book}
\end{align*}$$

The problem here is that the appositive QP always contains the definite article, even if the subject DP contains a possessive pronoun. The (a) and (b) examples are thus impossible to link and deletion is not an option, since it would delete a non-redundant possessive.

### 4.4 Section Review

In this section we have looked at a problem associated with the suppression of the definite article in combination with a $\forall$ NumQ in English and to a lesser extent in German. Three possible solutions were examined. The solution whereby there is a Surface Structure constraint that can be circumvented either by stranding or by suppression of the definite article seems to be the most plausible of the three solutions. This issue is a Germanic one, since in the Romance languages universal quantifiers do not select bare NPs. More language phyla would have to be
investigated in order to see what issues there are with ∀NumQs, definite articles and bare NPs.

5. Chapter Summary

In this chapter I have postulated the existence of a ∀NumQ consisting of a universal quantifier and a numeral. I have presented several different types of evidence that show that a ∀NumQ cannot be derived by movement of the numeral to Q and is thus base-generated in Q in its entirety. A ∀NumQ is not exactly a listed item but it is generated by a rule that is stored in the lexicon and consequently has certain characteristics of a stored item. The rule that governs the creation of a ∀NumQ is comparable to the lexical rules for number formation posited in Booij (2008) and in fact is probably one of them. The fact that a ∀NumQ is created by a lexical rule makes it very comparable to Di Sciullo and Williams’ syntactic word, which is inserted into a head position in the syntax just as I am saying that a ∀NumQ is inserted into Q. Since a ∀NumQ is formed by a rule stored in the lexicon, one would not expect it to be a universal phenomenon. Dutch, Italian, Romanian and probably English and German have a true ∀NumQ that selects a definite DP and can be stranded. Spanish, French, Portuguese and Catalán have no such element.

I have claimed that the ∀NumQ hypothesis in combination with the Stranding Analysis of floating quantifiers can account for the behaviour of universal quantifiers in combination with numerals cross-linguistically. I believe that the data support this claim. There is an issue in the fact that the base-structure of a ∀NumQ surfaces in Italian, Romanian, Dutch but is only possible in English and German if the ∀NumQ is stranded or if the definite article is suppressed. I suggested that this might be due to a Surface Structure constraint that blocks deviation from the standard order of constituents in the underlying hierarchy of the nominal domain.