The syntax of floating quantifiers: stranding revisited
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Summary of Thesis in English

This thesis is about the phenomenon known as floating quantifiers. A floating quantifier is one that is separated from the DP that it modifies:

(1) a. All the children are sleeping.
    b. The children are all sleeping.

Traditionally, there have been two ways to approach floating quantifiers. One way has been to analyse them as elements that initiate as modifiers of a DP and are “left behind” or “stranded” by that DP. This approach is known as the Stranding Analysis. The other approach has been to treat floating quantifiers as a kind of adverb. The purpose of this thesis is to take a fresh look at the Stranding Analysis, first of all by considering how it may have been impacted by some of the more recent developments in linguistic theory and secondly by testing it against much more empirical data than have heretofore been considered. The thesis actually begins with a question: If the Stranding Analysis is updated for more recent developments such as the Split VP Hypothesis, and if it is evaluated using much more empirical data involving a wider range of different syntactic structures in a greater number of languages, how will it fare against the various adverbial analyses of floating quantifiers that have been proposed during the last several years? I believe that I show that if the Stranding Analysis is supplemented with the Split VP Hypothesis, the most serious criticisms of it that have been made over the years immediately become untenable. Furthermore, if one is really thorough in the evaluation of empirical data and considers a wide range of syntactic constructions in several languages, one sees that the explanatory power of the Stranding Analysis is far-reaching and that it captures more generalisations than the various adverbial approaches. It is true that there are problems with the Stranding Analysis, as there are with all linguistic theories, but the problems with the Stranding Analysis are not solved by adopting an adverbial approach.

Chapter 1 begins with a brief history of the treatment of floating quantifiers. Because they appear to occupy the same position as adverbs, they were originally analysed as though they were adverbs, that is, as adjuncts to a verbal phrase, as the following example shows:

(2) The students have probably/thoroughly/slowly/already/all read the book

There were a number of problems with this adverbial approach, especially the fact that it failed to account for the seemingly obvious relationship between sentences such as the two in (1).

Other problems with the adverbial approach were that it could not straightforwardly account for the Φ-feature and case agreement shown by floating quantifiers, it did not deal with the question of what type of adverb a floating quantifier is and how its position is determined, and it could not explain why a floating quantifier, if it is
base-generated as an adjunct to a verbal phrase, needs a local, c-commanding antecedent.

Because of the problems with the various adverbial approaches, Sportiche (1988) developed an entirely new approach in which a floating quantifier is a nominal element that initiates not as an adjunct to a verbal phrase but as an adjunct to a VP-internal NP. Under this approach, when the NP moves up, for example to subject position, it can optionally strand the quantifier in VP. This so-called Stranding Analysis accounted for the relationship between the sentences in (1), it explained the Φ-feature and case agreement shown by floating quantifiers, it explained how a quantifier ends up in an adverbial position, and it solved the mystery of why a floating quantifier must have a c-commanding antecedent. The Stranding Analysis had another big advantage. It provided independent support for the then incipient VP-internal Subject Hypothesis.

The Stranding Analysis went through some refinements. Cardinaletti and Giusti (1989) proposed that a quantifier is not simply an adjunct to NP as originally proposed by Sportiche but a phrasal head. Giusti (1990) extended Sportiche’s analysis, which mainly covered French and English, to German. Shlonsky (1991), working with Hebrew, carried the idea still further and proposed that a floating quantifier heads a Quantifier Phrase and selects a DP as its complement. Under Shlonsky’s approach, the complement DP can strand the quantifier in QP when it moves up to a higher position. Shlonsky’s additions to the theory were the finishing touches on the syntactic structure and the mechanics that are involved in the Stranding Analysis.

In spite of the attractiveness of the Stranding Analysis, beginning in the early 1990s one could see a new tendency to defend an approach in which floating quantifiers do not initiate as the heads of QP but as adjuncts to a verbal phrase. One of the main reasons for returning to an adverbial approach was that the Stranding Analysis was felt to over-generate, producing ungrammatical sentences such as the following:

(3) a. *The students are coming all.
    b. *The criminals were arrested all.

As a reaction to the resurgence of the adverbial analysis, in this thesis I further refine Sportiche’s original theory by incorporating the Split VP Hypothesis into its theoretical framework. By following the widely accepted arguments that subjects are base-generated in [SPEC, vP] rather than in [SPEC, VP], that direct objects are base-generated in [SPEC, VP] rather than as complements of V, and that not non-agentive, intransitive verbs do not move from V to v, I prevent the Stranding Analysis from over-generating and thereby refute some of the most significant criticisms raised against the theory.
After providing a history of the study of floating quantifiers, I continue Chapter 1 by presenting the theoretical foundations and assumptions that my thesis is based on. The most relevant of these are basic X-bar theory as developed in Chomsky (1970), whereby all verbal projections contain both a specifier and a complement position, the VP-internal subject hypothesis as proposed in Kitagawa (1986) and elsewhere, the split VP hypothesis that originated in Larson (1988), the arguments in Den Besten (1983) that in V2 languages the main clause verb moves to C, and the theory of sentential negation in Zeijlstra (2004).

In Chapter 2 we see data from several different languages that involve many different kinds of syntactic structures, including active sentences, passive sentences, unaccusative sentences, sentences with multiple verbal elements, control verbs, raising verbs, small clauses and German *infinitivus pro participio* constructions, and we observe quantifier floating under both A-movement and A-bar movement. It is shown that quantifiers can be positioned in virtually any A-position, as predicted by the Stranding Analysis. Certain restrictions can be noted, however. In Romanian and Spanish, for example, stranding between a perfect auxiliary and a past participle is not possible. This restriction does not exist in French and Italian. As pointed out later in chapter 5, the restriction in Spanish and Romanian cannot be better explained by an adverbial approach, since adverbs can appear between perfect auxiliaries and past participles in those languages.

The analysis of stranding under A-bar movement in Chapter 2 is less conclusive. In all the languages reviewed, stranding in non-restrictive relative clauses is shown to be unproblematic. However, while German allows stranding by wh-words, English does not. English is shown to be peculiar in this regard anyway, because it allows the universal quantifier to select only bare wh-words like *who* and *what*, whereas German allows the universal quantifier to select full wh-DPs.

Another important observation made in Chapter 2 is that stranding is generally something that happens to subject quantifiers and not to object quantifiers. Object quantifiers can only be stranded in scrambling languages like German, Dutch and Japanese.

In Chapter 3 the data are similar to the data analysed in Chapter 2 except that they involve negated floating quantifiers such as in the following German examples:

(4) a. *Nicht alle* die Studenten haben das Buch gelesen.
    not all the students have the book read

    b. Die Studenten haben *nicht alle* das Buch gelesen.
    the students have not all the book read

Ultimately, the findings in Chapter 3 are essentially the same as in Chapter 2, however in Chapter 3 it becomes necessary to deal with a number of negation-
related issues that do not arise in Chapter 2. I argue, for example, that the difference between sentential and constituent negation is that sentential negation involves the negation of a finite verb, and I show that stranded negated quantifiers such as the one in (4b) are truly negated constituents, not simply non-negated stranded quantifiers that happen to fall under the scope of a sentential negation marker. I also argue that not only quantifiers and negated quantifiers but also negation markers can be stranded and that this can account for certain instances of ambiguity and inverse scope in the Germanic languages, as illustrated in the following ambiguous English example:

(5) All the students have not read the book.

That is, in the reading of this sentence in which the negation marker takes scope over the quantifier, with the meaning *Not all the students have read the book*, I argue that the subject is the negated QP *not all the students* and that the QP *all the students* strands the negation marker *not*.

Finally, by adapting the theory of sentential negation in Zeijlstra (2004) to constituent negation, I also offer explanations for two interesting differences between the Germanic and Romance languages. The first of these differences is that the inverse scope seen in (5) when there is interaction between a universal quantifier and negation is readily obtainable in the Germanic languages but is difficult or impossible in the Romance languages. The second difference is that negated quantifiers can be stranded in the Germanic languages, as seen in (4), but not in the Romance languages, as shown in the Italian examples in (6):

(6) a. Non tutti gli studenti hanno letto il libro.
   not all the students have read the book

b. *Gli studenti hanno non tutti letto il libro.
   the students have not all read the book

In Chapter 4 I deal with a type of floating quantifier that consists of a universal quantifier and a cardinal numeral. An example is the English *all three* and its equivalents in Dutch (*alle drie*) or Italian (*tutti e tre*). I refer to this type of quantifier as a *universal numeric quantifier* and show that it occupies the Q position just like a bare universal quantifier. I argue that a universal numeric quantifier can be analysed as a *syntactic word* as defined in Di Sciullo and Williams (1987). It behaves the same as a syntactic word and, like a syntactic word, it is inserted from the lexicon into an X° position, namely, Q. I also discuss the actual formation of universal numeric quantifiers. I argue that they are formed by a lexical rule very comparable to the number formation rules referred to as *constructional idioms* in Booij (2008). By combining the theories of Di Sciullo and Williams and Booij with the Stranding Analysis I am able to account for the behaviour of universal numeric quantifiers. I note that universal numeric quantifiers in English and German are exceptional
because if they are not stranded they require that the definite article in the selected DP be deleted.

In Chapter 5 it is shown that whereas there are problems with the Stranding Analysis, most of those problems also pose challenges for the adverbial approach to floating quantifiers. I review the adverbial analyses of Baltin (1995), Doetjes (1997), Bobaljik (2003) and Fitzpatrick (2006), none of which present a compelling reason for abandoning the Stranding Analysis. The analysis in Kobuchi-Philip (2003 and 2006) is interesting because it provides strong evidence that some floating numeral quantifiers in Japanese originate inside a nominal phrase while others originate as adjuncts to a verbal phrase. This is important because it shows that one need not assume that floating quantifiers must be either adverbial or adnominal in a given language. What is most important in Kobuchi-Philip’s analysis, however, is that there is evidence that numeral quantifiers that originate inside a nominal phrase in Japanese can be stranded. To be more precise, there are adnominal quantifiers in Japanese that occupy a position below the nominative case marker, and there is only one way for them to end up in that position: They must have been stranded there.

Chapter 6 contains a summary and some conclusions and also offers some ideas for future research. Perhaps the most fundamental open question is why some languages allow stranding while others do not. Stranding seems to occur only if there is a nominal phrase, like QP, higher than DP. In Japanese, numbers located in a CardP that dominates NP can also be stranded, but this can perhaps be explained by following the claim in Bošković (2008) that Japanese has no DP and NP functions as DP. In any case, it needs to be determined by extensive cross-linguistic research whether stranding is simply a parameter or whether it follows from the hierarchical structure within the nominal domain in a given language.

Related to the question of why a language does or does not allow stranding is the question of why it is primarily universal quantifiers that are stranded. Is it because only universal quantifiers head QP? If there are languages in which non-universal quantifiers can also be stranded, can it be shown that in those languages QP can be headed by both universal and non-universal quantifiers? It is reported in Delsing (1993) that in Icelandic, for example, non-universal quantifiers can be stranded, however they co-occur with the definite article in these instances, which would indicate that they head a phrase higher than DP even though they are not universal. This question on universality is clearly one that only a lot of cross-linguistic research would be able to answer.

Another area worth investigating is why languages like Romanian and Spanish, unlike French and Italian, do not allow stranding between a perfect auxiliary and a past participle. This is a bit mysterious, since this position is open to other elements, such as adverbs. The very same thing can be said about Swedish. This would also be worth looking into.
Another potentially interesting research topic, mentioned in Chapter 2, has to do with object quantifiers. The stranding of object quantifiers is virtually non-existent outside of scrambling languages like German, Dutch and Japanese, the only exception being climbing object clitic pronouns, which can also strand a quantifier. It is not really clear why object quantifiers cannot be stranded. Future research is required here.

There is another open question regarding objects, referred to in Chapter 3, which could also be an interesting research item, and that is the fact that negated object quantifiers are not permitted in VO languages but they are allowed in OV languages, as the following English and German sentences demonstrate:

(7) a. *He has read not all the books.
   b. Er hat nicht alle die Bücher gelesen.

This may have something to do with the fact that constituent negation generally must be above the position of sentential negation, but this observation is purely descriptive and cross-linguistically untested. Again, further research is necessary.

My final suggestion for future research is based on my observation that there seems to be a correlation between a quantifier’s syntactic positioning and its semantic features. I assume that all occupies Q, some occupies D and most occupies an adjectival position, as in John has read the most books. Further observation reveals that these three quantifiers not only occupy different syntactic positions but also differ from each other in the semantic features of universality, strength, symmetry, cardinality and monotonicity. This correlation between syntactic positioning and semantic features is striking, but its exact relevance to linguistic theory is not yet clear. If it is further researched cross-linguistically it may lead to a better understanding of the link between syntax and semantics and answer the question of whether semantic features can predict syntactic positioning.